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ABSTRACT

The purpose of this research was to study the link between effective management strategies and the impact of educational research and development. The 19 R & D Centers and Regional Laboratories of the United States Office of Education were selected as the focal organizations for analysis. Using document analysis and interviews, the researchers drew a number of conclusions about effective organizational strategies in (1) Program Focuses and Evaluation Systems, (2) Commitment to Dissemination and Implementation, (3) Staffing Patterns, (4) Relations with Field Users of R & D Innovations, and (5) Relations with Educational Training Institutions. The 3-fold task included the descriptive phase, which outlined various practices within the labs and centers on the above topics; the analysis phase, which pointed to some practical consequences of using different styles of management; and the recommendation phase, which suggested some management policies that the authors felt should be widely adopted. The authors consider this project to be an example of "policy research", or that research which analyzes a practical problem with specific policy outcomes in mind. They therefore present a set of recommendations that may actually be implemented in Educational Research and Development centers. (Author)

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THE IMPACT OF EDUCATIONAL R & D CENTERS AND LABORATORIES:

AN ANALYSIS OF EFFECTIVE ORGANIZATIONAL STRATEGIES

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EA 005 358

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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FORWARD

This study of the impact of educational R & D centers was undertaken by J. Victor Baldridge and Rudolph Johnson under a program of short research projects sponsored by the National Academy of Education, under a grant from the Spencer Foundation. The program is designed to encourage scholars to do pilot projects in areas pertinent to educational innovation in close association with a member of the National Academy of Education. The Academy selects proposals which are initiated by an Academy member, then the member in turn nominates an Academy Associate for the duration of the project. After I had initiated this proposal, and it was endorsed by the Academy, a number of excellent nominees emerged. Dr. Baldridge, a member of the Education and Sociology faculties at Stanford, was selected for appointment because of his research interests in organizational effectiveness, and was designated as an Academy Associate to work under my supervision on the project during 1971. He enlisted the help of Mr. Rudolph Johnson, then a graduate student in education, and was fortunately able to supplement the Academy support with aid from the Proctor and Gamble Foundation, through a special fund administered by the School of Education, Stanford University. He and Mr. Johnson conducted the empirical part of the study, including extensive interviewing during the summer and autumn of 1971. An additional five months was spent in analyzing their data and in the preparation of the report. Once the project was launched my own role was a very modest one, but I am pleased to have been associated with it. I commend the report to serious study.

Responsibility for the conclusions and recommendations rests with the authors, and agreement by the supporting agencies or by me is not necessarily implied.

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May 15, 1972

THE IMPACT OF EDUCATIONAL R & D CENTERS AND LABORATORIES: AN ANALYSIS OF EFFECTIVE ORGANIZATIONAL STRATEGIES

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I. ABSTRACT

The purpose of this research was to study the link between effective management strategies and the impact of educational research and development. The nineteen R & D Centers and Regional Laboratories of the United States Office of Education were selected as the focal organizations for analysis. Using document analysis and interviews, the researchers drew a number of conclusions about effective organizational strategies in the following areas: (1) Program Focuses and Evaluation Systems, (2) Commitment to Dissemination and Implementation, (3) Staffing Patterns, (4) Relations with Field Users of R & D Innovations, (5) Relations with Educational Training Institutions.

The task was three-fold. First, the descriptive phase outlined various practices within the labs and centers on the above topics. Second, the analysis phase pointed to some practical consequences of using different styles of management. Finally, the recommendation phase suggested some management policies that the authors felt should be widely adopted.

The authors consider this project to be an example of "policy research" which analyzes a practical problem with specific policy outcomes in mind. As such, they present a set of recommendations which may actually be implemented. While some of the recommendations may be debatable, and perhaps even wrong, they nevertheless provide food for discussion which may stimulate new ideas for more effectively managing R & D organizations.

II. BACKGROUND ISSUES

A. PURPOSES OF THE RESEARCH

Briefly put, the goal of the research was to study the organizational and administrative arrangements which facilitated or hindered effective research implementation from the Federal system of Educational R & D Centers and Regional Laboratories.

The goal of the Federal network is to harness creative research efforts and to solve real-world educational problems. Many critics of the R & D effort have argued that educational research is ineffective, disorganized, and lacking in impact on the educational processes of schools throughout the nation. The criticism can be summed up simply: The R & D network is busy spinning academic wheels, publishing useless reports, and doing "basic" research while the educational system cries out for help that it does not receive.

In light of these criticisms we undertook to study the R & D network and to identify some successful administrative practices which might improve their performance. The task of this research, then, was to look at the implementation and dissemination activities of the Federal network, to identify successful activities, and to locate organizational and administrative barriers to effective performance. In addition, we wanted to push beyond analysis of the problems to concrete, practical recommendations that we hope will have impact on the decision-making in the Federal network. More sharply focused, our task was:

1. To identify examples of successful implementation, and to examine the research process and the administrative procedures associated with those successes.

2. To study the organizational arrangements within the individual centers and laboratories that seemed to be helping or hindering the implementation activities.

3. To analyze the consequences that these organizational arrangements brought with them; to specify some of the advantages and disadvantages of alternative arrangements.

4. To make concrete policy recommendations about the management of R & D Centers and Laboratories that might make them more effective in their tasks, especially in the implementation phases.

B. POLICY RESEARCH: THE BROAD CONTEXT FOR THE R & D ENTERPRISE

Before going farther with the specifics of this particular research it will be helpful to show the larger context within which the whole enterprise rests. The educational R & D system is essentially an attempt to carry out systematic "policy research," that is, research which is focused on the solution of real-world, practical problems. Cronbach and Suppes have suggested a distinction between two kinds of research:

1. Conclusion-oriented research seeks to establish factual information about a limited scientific problem. The audience is a professional body of scholars interested in a similar problem; the method is scientifically rigorous; the conceptualization is fairly abstract and theoretical; the outcome is advancing scientific knowledge and building theoretical frameworks that are systematic, interrelated, and empirically supported; the communication medium for reporting the conclusion is generally the scientific journal or scholarly monograph; the impact on decisions and policy is limited and indirect.

2. Decision-oriented policy research seeks to solve fundamental practical problems, regardless of what kind of scientific advancement is made. The audience is usually a group of decision-makers who have on-going social enterprises to manage and need the input for effective policy formulation; the method of research is not so much scientifically rigorous as it is practically pragmatic; the conceptualization is practical, decision-oriented, and less abstract; the outcome is a body of recommendations that may be translated into policy decisions for managing and directing the on-going activity; the communication medium is directly with the users of the recommendations.*

In the physical sciences there is a long tradition of decision-oriented research located in the engineering community. The engineering establishment provides a bridge between the physical sciences on one hand, and the practical problem-solvers and decision-makers on the other hand. The practical decision-makers, the engineers, and the physical scientists have a complex relationship that makes technological progress possible.

*Cronbach, Lee J. and Patrick Suppes (eds.), Research for Tomorrow's Schools, (N. Y.: Macmillian, 1969) p. 19.

In the social sciences, however, this translation and feedback cycle has never been well developed. The social sciences are still in their infancy; social engineering and technology is virtually nonexistent; and the decision-makers in the real-world setting have not learned how to phrase the right questions or to utilize social science information productively.

Most importantly, up until very recently there have been no organizational structures in which policy science could be carried out. Modern society implements its goals by building effective organizational structures with financial bases, support facilities, technical manpower, and systematic management skills. Universities, hospitals, government agencies, engineering firms, private businesses--these are the organizational settings where goals get translated in action. In the policy sciences, however, there simply have been no effective organizational structures to carry out the task.

The development of an effective policy science network is still a long way off in many areas, but great strides have been made in recent years. The last twenty years has seen the blossoming of the social sciences; the next twenty years will see the parallel development of social policy sciences. The methodologies for policy research are painfully emerging; the money for such activity is increasing rapidly; the manpower is being roughly, crudely, and slowly trained; the public acceptance of such enterprises is steadily growing; intellectual respectability for applied research is increasing; theoretical paradigms that specifically address themselves to practical outcomes are now intellectually respectable. Of great significance, too, is the creation of organizational structures for providing the support, facilities, and money to produce effective policy research.

This is the point of the discussion: the present paper is an attempt to study the effective operation of a "policy research" enterprise, using the Federal educational R & D network as the specific case. While we are specifically studying the R & D system, our conclusions may be applicable in other policy science organizations.

C. THE FEDERAL R & D NETWORK: POLICY SCIENCE CENTERS FOR EDUCATION

Beginning in 1963 with the Cooperative Research Act and in 1965 with the passage of Title IV of the Elementary and Secondary Education Act, the U.S. Office of Education has funded numerous institutions for research and development in education. The purpose of these institutions was not merely to expand the quantity of educational research. Instead, they were to break new ground, to bring together "critical masses" of expertise to focus on major system-wide problems in education, and to develop new large-scale research and development technologies. The outcome of the work was to be visible improvement in education on a large scale.

In the first years after the funds became available and proposals were accepted, painful shortcomings were all too evident. A large pool of highly capable manpower was not readily available for this work. Management skills for this new kind of policy research were scarce. It was obvious that the project management in the USOE was unclear about its expectations for the new institutions. No standard structure for research and development was imposed, and the problems to be tackled were largely the choice of the applicants. Problems of diffusion and adoption were far in the future.

As the years went on funding did not expand as hoped. Choices had to be made: to keep all the funded institutions at level funding, or to eliminate some and stregthen others. Criteria were established for judging results even

before results could fairly be expected, and some institutions were eliminated.

At present there are eight university-based "research and development centers" and eleven "regional laboratories." (See Table 1) In the early stages there were strong expectations that major differences could be maintained between the two types of organizations. The R & D Centers were to do "basic" research, expand on theoretical paradigms that might be useful in future enterprises, and carry their applied and developmental efforts to a prototype model. The model could then be further developed by the Regional Laboratories. The regional Laboratories were to do more "developmental" work, with strong emphasis on product development, packaging, and dissemination. In addition, it was assumed that there would be a "funneling" process, with the R & D centers thinking up basic ideas, carrying them part of the way, then handing them on to the laboratories for further development and production. The general consensus among observers seems to be that this process has not worked well. Instead the centers and the labs have proceeded independently and often on parallel courses. Consequently, the distinctions between the labs and centers has steadily diminished.

TABLE 1
LIST OF CURRENT R & D CENTERS AND REGIONAL LABORATORIES

I. University - based R & D Centers

* Center for Social Organization of Schools - Johns Hopkins University (CSOS)(3)

* The Research and Development Center for Teacher Education - Univ. of Texas (RDTE)

* The Stanford Center for Research and Development in Teaching - Stanford (SCRDT

* Center for the Advanced Study of Educational Administration - Univ. of Oregon (CASEA)

* Center for the Study of Evaluation - UCLA (CSE)

* Wisconsin Research and Development Center for Cognitive Learning - Univ. of Wisconsin (WRDCCL)

* Learning Research and Development - Univ. of Pittsburg (LRDC)

The Center for Research and Development in Higher Education - University of California-Berkeley (CRDHE)

II. Regional Laboratories

* Northwest Regional Educational Laboratory - Portland, Oregon (NWREL)

Mid-continent Regional Educational Laboratory - Kansas City (MCREL)

* Research for Better Schools, Inc. - Philadelphia, Pennsylvania (RBS)

Southwestern Cooperative Educational Laboratory - Albuquerque, N.M. (SWCEL)

* Center for Urban Education - New York, New York (CUE)

* Central Midwestern Regional Education Laboratory, Inc. - St. Louis (CEMREL)

* Southwest Regional Laboratory for Educational Research and Development - Los Angeles (SWRL)

* Far West Laboratory for Educational Research and Development - Berkeley (Far West)

* Southwest Educational Development Laboratory - Austin, Texas (SEDL)

* Appalachia Educational Laboratory, Inc. - Charleston, West Virginia (AEL)

* National Laboratory for Higher Education - Durham, N. C. (NLHE)

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* Organizations included in this research project. For convenience, throughout this paper centers and laboratories will be referred to by the initials or abbreviations in parenthesis.

D. SPECIFIC POINTS FOR ANALYSIS

We have given some general points for the research, namely, to study the organizational and management problems of policy science research using the Federal R & D network as the specific case. Now we want to get down to specifics.

First, the key point of analysis will be on educational impact, on the end result of the R & D process. The supporters of research -- parents, congressmen, Office of Education officials, local school administrators -- want educational reform, change, and innovation. In short, they want concrete practical results, not just more esoteric journal articles in unreadable jargon. The criterion for assessing effective R & D must be its impact on the users of the educational system -- the learners. This became the touchstone of our research. The key question was always the same: What administrative and organizational arrangements lead to real payoff in terms of educational impact?

This is a tough question and it is not easy to answer. For one thing people differ greatly about what an educational payoff should be. Should it be journal articles to influence scholars in the theoretical area? Should it be massive implementation efforts through commercial publishers to produce a new curriculum? Should it be local projects designed to help a local school principal? It is truly difficult to say, and people have very firm views about what "impact" is and what kinds of educational research will have genuine payoff.

We arrived at some rough guidelines to frame our thinking. In order to be judged as having high promise for educational reform we felt the R & D effort would have to demonstrate the following criteria:

1. It should be problem-focused, with the needs of educational practice dictating the R & D effort rather than theoretical interests alone.

2. It should be programmatic, with interrelated efforts leading from research to development to dissemination to implementation. Efforts which stopped short of the full cycle were obviously not going to have much impact on educational reform.

3. It should have serious potential for actual use, not merely an exercise that results in interesting but un-useable findings. Several programs, for example, found that outrageous expense prohibited the use; others were aborted because of political issues.

4. In sum, we wish to study the practices associated with "decision-oriented research" as opposed to traditional "conclusion-oriented research."

When faced with such a list of criteria people constantly made intelligent estimates of programs that were having payoff within the R & D network, and they frequently could link specific organizational arrangements with those successes. For example, a number of people suggested that the Multi-unit School plan at Wisconsin was clearly a high pay-off activity. In addition they could point to staffing patterns, funding priorities, and management skills that were linked to that success. Many other examples were cited and we will repeatedly be discussing specific cases in the report.

Instead of amassing examples of "good" research and then correlating those with "good" administrative behavior in some statistical sense, we decided on a much looser format, to explore the problem from both directions at onc First, we asked people to describe some outstanding R & D examples and to link the success to the unique characteristics of the center or lab that produced them (i.e., what kind of staffs did they marshal, how did they relate to their users, how were funds spent, etc.). Second, we asked people to work from the other direction, to examine different patterns of administration (using university-based people versus non-university people; using full-time versus part-time staff; working directly with local districts) and then to specify the outcomes that a center or lab might expect using those practices.

Thus we had a two-pronged approach: (1) get the good development examples and work back, and (2) get the consequences of various management practices. Using this procedure we arrived at our conclusions on several issues that our interviewees stressed as most important.

(1) Program Focuses and Evaluation Systems
(2) Commitment to Dissemination and Implementation
(3) Staffing Patterns
(4) Relations with Field Users of R & D Innovations
(5) Relations with Educational Training Institutions

Each of these topics is discussed in a section of the report following. Within each section we try (1) to describe the general problem and the varieties of patterns found in the R & D network; (2) to analyze some of the consequences that different management patterns have on the research; and (3) to make a set of policy recommendations about reforming the management practices. Incidentally the reader should note that this report itself is an example of "policy research" in action: it is problem oriented; it has research components, and it has direct policy implications.

The report is based on observations, insight, opinion, belief, and a rich mixture of value judgements that we brought to the job. It is in no sense a "scientific" set of conclusions; it is in a real sense a "policy-oriented" set of recommendations.

E. RESEARCH PROCEDURES

We felt that too rigid a research design would have impeded our task. Therefore we included in the design a variety of techniques which yielded a rich mix of information. The specific techniques were:

(1) A survey was conducted of the literature in the field of educational research and development and policy research. The most important items are included in the bibliography.

(2) Documents from the nineteen institutions listed above were examined, particularly annual reports, annual budget justifications, program descriptions, and selected programs outputs.

(3) Sixteen of the institutions were visited. A number of key staff persons were interviewed in each case, including the director at 15 of the 16 organizations included in the study.

(4) Many additional interviews were conducted at private research institutions and at the U.S. Office of Education.

(5) Meetings of CEDAR, the organizations for center and lab directors, were attended.

The remainer of the report is organized by topic areas, with Program Focuses as the first issue.

III. PROGRAM FOCUSES AND TYPES

One of the chief determinants of the success or failure of any organizational effort is the definition of the problem that frames the activity. The R & D centers tackle a wide variety of issues and problems in education, and the program definitions that they develop certainly influence the outcomes. It is beyond the scope of this paper to examine the content of widely different programs, but we found two topical problems that seemed critical and yet specific enough for us to develop some reasonable suggestions. First, the "program focus" approach of the Office of Education clearly delineates both the subject matter of R & D programs and the strategies used in addressing those problems. Second, the evaluation systems used to analyze the programs have heavy impact on the outcomes of research. Let us look at each of these topics as problems for the centers.

A. THE INTEGRATED "PROGRAM" APPROACH TO R & D MANAGEMENT

Over the last few years the Office of Education has insisted that each R & D center and lab become more problem oriented, more focused on a limited range of issues, and more "programmatic" in its research efforts. In the early years the centers and labs grew without much clear direction or focus, chasing after each researcher's particular interests and research skills. By almost all accounts, the early R & D effort in education was a fragmented bunch of projects in search of a focus, a mish-mash of ideas with little systematic integration -- the old-style, laissez-faire academic approach where everyone did his own thing. The academic style of highly individualistic, highly esoteric research clearly dominated.

The Program, Planning, and Budgeting emphasis received widespread acclaim during the McNamara administration in the Defense Department. The Bureau of the Budget, under the direct prodding of President Johnson, began to demand the same

kind of systematic planning and budgeting from other Federal agencies. Gradually this emphasis spread down through the Office of Education to the R & D network. During the late 1960's OE put intense pressure on the R & D centers and labs to refocus their efforts toward heavy problem orientation instead of "pure" research, and to tighten up the management of programs so that they would be more integrated, systematic and carefully interconnected. The individualistic, pure research of the academic professor was to be harnessed into programmatic, problem-oriented team research. Many individual projects were dropped, while many labs and centers had major shakeups in both program focus and management. Almost every center or lab reported that this refocusing was an important aspect of their growth pattern in the last few years.

In our interviews we found that people generally felt the sharpening of focus and the constant emphasis on problem-oriented research was a fruitful and necessary move, even though it caused interruptions of personal projects and even personal careers. By and large, interviewees believed that their work was improved because of this stress. People felt that in the long run they would now have much more impact on educational change than if they had continued under the old fragmented, individualized research procedure.

Although it is widely acclaimed as an effective move we believe that many centers and labs have not wisely used the problem-oriented, programmatic nature of research. The centers and labs vary considerably on this issue. One or two seem to have gone utterly mad in their stress on "systems" approaches, to the point that management trivia seems destined to destroy productive efforts. For example, at one lab program directors complained that routine record keeping and reporting activities to fulfill "programmatic" requirements were so trivial and so frequent that much of their productive effort was wasted in administrative routine. At the opposite extreme, however, there are still a number of R & D

organizations, especially some university-based centers, which have still never taken the programmatic research focus seriously. There is much deliberate window-dressing of the degree of integration among elements in a program, and there are clearly many professors who are still doing their own bag of tricks with little practical pay-off in sight. In one center, for instance, a person doing fairly esoteric work on decision-theory which he expressly stated had little impact on practical administration was nevertheless reported as a "change-agent for public schools" in the center's publicity documents. To be sure, "pure" research must be protected in the R & D network, for that is still one of the basic goals of the system. However, serious attention is still needed, half a decade after the emphasis began, on making research problem focused and programmatic. That battle is not yet won.

Recommendation 1: The stress on problem-focused, practical research which is systematically linked in programmatic fashion must continue to be a major concern of all levels of R & D management. Evaluation procedures at the federal level should continually focus on this problem, and individual labs and centers should continually re-evaluate their own operations to insure that they are as integrated as possible.

B. PROGRAM DESIGN AND APPROPRIATE EVALUATION SYSTEMS

Organization theorists and systems analysts have become increasingly concerned about the role of evaluation processes in promoting different types of organizational behavior. In fact, it is often argued that the basic link in any authority structure is the evaluation of work and the distribution of rewards in light of that evaluation. One critical way to insure compliance with the goal of problem-focused, programmatic R & D efforts is to structure management systems so that they reward programmatic efforts and discourage non-programmatic efforts. Saying it another way, we believe in the OE stress on programmatic research, but we also believe that such an emphasis must be institutionalized into the on-going evaluation process.

The Office of Education has recently recognized this problem and has commissioned two independent planning groups to design a new evaluation network for the R & D network. It is much too early to know how the plans will be put into practice, but a move toward long-range, individual program support seems to be a key element in both plans. We feel that this move will strengthen the emphasis on problem-focused, programmatic efforts. However, a number of issues came out in our interviews which might inform the implementation of the new evaluation systems. First, there is a need for matching appropriate evaluations with program outcomes. Second, there is a complaint that evaluation personnel are frequently inadequate to their assigned task because of inexperience in the area they are evaluating. Third, the overall system evaluation process should not push out in-house evaluation processes which are now emerging at specific centers and labs.

(1) Differential Evaluation of Curriculum Packages and Change Support

First, there is the issue of matching evaluations to the unique program. John Hemphill suggests that one useful distinction between program outputs from the R & D centers and labs might be to divide them into product development and change support processes.*

"Product development" stresses packageable products which can be exported directly to a school system with very little change in the basic structure of the system. Examples would be new curriculum innovations such as Far West's mini-courses or Pittsburgh's IPI which can be directly sold to a user.

"Change support," on the other hand, is directed toward changing the school system in some fundamental way. Examples would include new management systems coming out of CASEA, new budgeting systems, integration projects such RBS's

*John Hemphill, "Educational Development," The Urban Review, Vol. 4, No. 2, October 1969, pp. 37-45.

relation to Harrisburg, evaluation mechanics coming from UCLA, or "open school" physical plants such as those under study by Stanford. There are, of course, several developments which fall somewhere in between product development and change support. The Wisconsin Multi-unit school concept is a clear example, for it combines new curriculum innovations with changes in school organization. CUE's combination of a new social studies curriculum with Community Learning Centers as an organizational innovation is another case in point.

The two kinds of program outcomes demand different implementation strategies. When the end result of research and development is a packageable product, the institution is usually able to exert substantially more control over the development process. On the other hand, structural changes in educational systems, the introduction of wholly new concepts and technologies, or attitude changes in personnel require grappling with more subsystems, more variables, and more unknowns than, say, the development of a self-contained curriculum unit for the teaching of welding.

The important thing for our present purposes is that different program outputs also require different types of <u>evaluation</u> processes. At present there seems to be some confusion about the differences between different kinds of output, with all kinds being forced into a "package" mold when evaluation is done. There was probably as much complaint about this one point as any other. People who were primarily concerned with change support type activities felt that the evaluators were using criteria that were most appropriate for pre-packaged curriculum innovations. The stress on packageability, the emphasis on self-contained units that needed limited interpretation to the user, and the demand for units which can easily be developed for sale by a commercial publisher are all evaluation criteria that are rarely appropriate for change

support efforts. While OE officials denied that this was the uniform evaluation criteria, many researchers felt that their specific evaluators were imposing this kind of mentality on them. As one angry researcher who had just been evaluated put it:

> They (OE evaluators) just don't understand the difference between organizational change activities and curriculum packages. They always want to know two things: is it bigger or smaller than a breadbox, and how much does it cost to mail it. When you are dealing with organizational change as your product none of these questions is relevant!

While this man's comments are obviously exaggerated, the feeling seems rather widespread among people primarily involved in change support activities instead of curriculum development. While uniformity of evaluation is a valuable goal it should never be pressed to the point that different programs are forced into inappropriate molds. This is particularly important since OE is presently considering a new evaluation procedure. A recommendation that follows naturally from this problem is:

> Recommendation 2: Evaluation procedures should be carefully structured so that they are appropriate to the program under consideration. Hence, they must, first of all, recognize the goals of the program. If these goals are thought inappropriate, an assertion to that effect differs from an evaluation of the outcome. Where outcome is evaluated against goals, the <u>criteria</u> of evaluation should be specified, so that whatever value judgments that enter can be detected.

(2) <u>Inappropriate Evaluation Personnel</u>

A second issue concerns the evaluation personnel. Not only are the evaluation criteria sometimes inappropriate, there are numerous complaints that the personnel on evaluation teams are simply not experts in the areas they are assigned. One researcher at Stanford told the following story:

> It was one of those rush-up evaluation jobs that gets announced a week or so before a team arrives. The guy who was supposed to evaluate my program met with me for about two hours, during which it became increasingly apparent he didn't know a damn thing about my program or even my academic specialty. Finally I got so furious that I marched down to Bush's office (the center director) and demanded to know who this guy was. It turns out he was a post-doctoral student at _____who wasn't even in the general area of my program. I simply offered to take the poor bastard out to dinner instead of discussing my program further. At dinner he confessed that he had been contacted three days before the evaluation team, had not even read the program description in the Annual Budget Justification, and knew virtually nothing about my program. To say the least I was not particularly happy with the evaluation procedure, although his report was vague and ambiguous enough that I really didn't worry about what he said.

Thinking this was an extreme case we asked a number of other researchers at other centers and labs if they ever felt they had been evaluated with either inappropriate criteria or people. Several people suggested specific cases. The following recommendation is obvious, but from numerous complaints we feel it needs saying:

> Recommendation 3: Evaluators should always have expertise and experience in the area they are evaluating. Moreover, they should have sufficient time and preparation that they understand the programs they are to evaluate.

(3) Internal Evaluation Systems

The final point about evaluation concerns the in-house evaluation processes that are emerging in various labs and centers. CUE, Wisconsin, Northwest Lab, and RBS have devised fairly elaborate systems of in-house evaluation. These units are generally separate from any particular program. Consequently, they offer some objective evaluation of programs which otherwise would only be criticized by people who have major ego-investments. Formative evaluation is offered as the program is progressing so that immediate feedback can reshape the program long before it reaches the terminal point. Summative evaluation is given at the end so that the weaknesses and strengths of the program can be identified before diffusion and dissemination begins.

While we do not know enough to suggest one model as an exemplary case, we, nevertheless, believe that some in-house evaluation unit is needed in order to hold the researcher's nose to the grindstone of problem-focused, programmatic R & D efforts. There are many pitfalls in this approach which must be recognized from the start: unless the evaluators have sufficient expertise and experience to really understand the program, they will cause more harm than good; unless the evaluation unit has real administrative sanctions available (such as reallocation of funds) its recommendations may be ignored; unless the program directors are convinced that continuing evaluation is necessary they can easily sabotage the evaluation unit. Whether or not threse desiderata are met, the in-house evaluation idea seems worth a serious attempt.

Recommendation 4: Information about existing in-house evaluation systems should be widely distributed among R & D organizations, through OE itself or through the CEDAR organization, in order that others may learn from them.

Recommendation 5: Labs and centers which do not presently have in-house evaluation units should seek information from other centers and labs and should carefully consider the advisability of beginning one.

In summary, the continued emphasis upon problem-oriented, programmatic research must be coupled with a structured system of evaluation which will have serious sanctions at its disposal to effect change. At both the Federal level and within individual centers and labs there must be continuing discussion about procedures for implementing evaluation systems. Without hard-nosed, effective, and appropriate evaluation the drift toward less focused individual projects which characterized the R & D network in its earlier years, might easily reappear.

IV. SHOULD THE CENTERS AND LABS DO DISSEMINATION AND IMPLEMENTATION?

A. RESEARCH MODELS

There are a number of articles which deal with the conceptualization of the research process, one of the best known of which was done by Guba and Clark.* Figure 1 shows the essential stages that these authors believe are critical in reforming education through policy research. Basically there are four steps: (1) research on a problem area, (2) translation of that research into a practical problem-solving technique through development, (3) spreading of information about that technique through diffusion efforts, and (4) eventually effecting educational change by adoption of the technique in the field setting.

Critics of this model argue that it is too "linear," that it assumes it is based on a "hand-it-on" philosophy which assumes a series of unrelated steps producing a needed end product. The critics suggest that the research process is really "non-linear," that constant feedback from the field into the research effort is needed, that the people committed to field practice must constantly collide directly with the basic researchers instead of merely with "dissemination" people, and that the whole process is much more tightly interrelated than discrete linear steps suggest. This debate between various research models (vastly oversimplified and caricatured here) has serious implications for the R & D mission. Research is in fact not linear and the R & D network cannot easily slice off part of the action (the earlier steps in the cycle) and leave the rest to someone else. Because non-linear model is more nearly correct it would be a drastic mistake to isolate the R & D network from the creative feedback that comes with field involvement.

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*For a review of alternative research models see Educational Research and Development in the United States (U.S. Government Printing Office No. HE 5.212:12049, Washington, D. C., 1970).

FIGURE I

A CLASSIFICATION SCHEMA OF PROCESSES RELATED TO AND NECESSARY FOR CHANGE IN EDUCATION *

	RESEARCH	DEVELOPMENT		DIFFUSION			ADOPTION	
		INVENTION	DESIGN	DISSEMINATION	DEMONSTRATION	TRIAL	INSTALLATION	INSTIUTIONALIZAT
OBJECTIVE	To advance knowledge	To formulate a new solution to an operating problem or to a class of operating problems, i.e., to innovate	To order and to systematize the components of the invented solution; to construct an innovation package for institutional use, i.e., to engineer	To create widespread awareness of the invention among practitioners, i.e., to inform	To afford an opportunity to examine and assess operating qualities of the invention, i.e., to build conviction	To build familarity with the invention and provide a basis for assessing the quality, value, fit, and utility of the invention in a particular institution, i.e. to test	To fit the characteristics of the invention to the characteristics of the adopting institution, i.e., to operationalize	To assimilate the invention as an integral and accepted component of the system, i.e., to establish
CRITERIA	Validity (internal and external)	Face Validity (appropriateness) --- Estimated Viability --- Impact (relative contribution)	Institutional Feasibility --- Generalizability --- Performance	Intelligibility --- Fidelity --- Pervasiveness --- Impact (extent to which it affects key targets)	Credibility --- Convenience --- Evidential Assessment	Adaptability --- Feasibility --- Action	Effectiveness --- Efficiency ---	Continuity --- Valuation --- Support
RELATION TO CHANGE	Provides basis for invention	Produces the invention	Engineers and packages the invention	informs about the invention	Builds conviction about the invention	Tries out the invention in the context of a particular situation	Operationalizes the invention for use in a specific institution	Establishes the invention as a part of an ongoing program; converts it to a "non-innovation"

*Source: David L. Clark and Egon Suba, An Examination of Potential Change Roles in Education" NEA, Center for Study of Instruction, Arelie House Conference, October, 1965.

In evaluating this debate over the research/development/implementation cycle we arrived at several conclusions which color what we will say later:

(1) Research is not more important than development, diffusion, or adoption. Whenever there is full commitment to the research and development enterprise, one part of the whole cannot be elevated above the rest. Failure at any state is failure of the whole, because success means use of the institution's work in improving schools. Research may bring additional rewards to its practitioners outside the context of the enterprise, but internally, it's the process as a whole that counts.

(2) Thoroughgoing feedback at every state is a necessary part of this work. Basic research must respond to input from developmental and field adoption work; development must be linked to input from basic research and field adoption experiences; and so forth. The initiation of inquiry can begin at any stage; exploratory background research may begin the process, but initiation is just as likely to come from expert field practice

(3) Thoroughgoing evaluation is necessary at every stage of the work. Evaluation of the process as well as the outcome goes on continually, and this may include an evaluation of alternatives. The criteria for evaluation statements and decisions are different in research and development than they are for traditional project research because focus is on results in schools rather than advances in theory or orthodoxy of research design.

(4) The process may frequently be described as the search for powerful, change-oriented variables which can cause desired results in changing some educational system. The most powerful independent variables may be unearthed by theoretical work or by repeated field testing of some process. The goal, however, is not only the discovery of powerful variables, but improvement in some educational system. It may be that inventive institutional designs will be fully as important as analytically conceived variables.

B. NIE'S ROLE IN DISSEMINATION AND IMPLEMENTATION

While it may seem to be a theoretical digression, this discussion of the research cycle is right at the heart of a number of critical decisions now facing the R & D network. At present there are major plans for the creation of a National Institute for Education (NIE). This would be an agency to conduct educational research with independent status from the Office of Education. The center and lab system that presently functions within the Office of Education would be largely shifted to NIE if the plans are carried through. In addition,

the National Center for Educational Communication was recently established. This is an agency within OE charged with dissemination and limited implementation of educational reform strategies from a wide variety of sources, including the center and lab network but also incorporating other sources of ideas. These new developments are critical, for they will probably drastically alter the administration of the R & D effort.

Most importantly, there is a conflict about the role of NIE in dissemination and implementation efforts--some people suggesting it would be wise to limit NIE (and the R & D network) to research and development, with NCEC and others doing the dissemination and implementation. Among the people we interviewed, especially those in top executive positions who knew about the debate, the question of the centers' and labs' roles in dissemination and implementation was a source of major concern.

C. ARGUMENTS PRO AND CON ON ISSUE OF DISSEMINATION

Most of the researchers we interviewed were convinced that it was important to complete the R & D effort all the way from an idea to a field implementation. Essentially, they argued that research is non-linear, that it must have feedback from the field, and that the same researchers who have ego-investments and expertise in the original plans are the logical ones to carry the work through to completion. The "hand-it-on" philosophy was widely critized as unworkable. Dr. Benjamin Carmichael of the Appalachia lab commented:

> Listen, its better just not to have the innovations if you can't seriously try them out in the schools where they are supposed to work. Dissemination, diffusion, research, and development are <u>one</u> enterprise, not just separate, discrete steps. Dissemination is not PR work, it's not running around selling some neat little packaged product. No, it is a basic part of the R & D process, an integral part of the enterprise. I wish people would wake up to that fact and give us the financial and staff resources to do it right.

Although there was widespread belief that the centers and labs should be doing more diffusion and implementation work there was also widespread feeling that OE was strongly opposed to that role for the R & D network. At least 13 interviewees mentioned OE's opposition as the major problem in developing effective follow-through on programs. Charles Frye, former head of the OE division under which the R & D network functions (DRDR), stated that indeed OE policy was to discourage the centers and labs from moving into the latter stages of diffusion and implementation. Budgets clearly reflect this anti-implementation philosophy--at least four interviewees cited examples of programs which were prematurely halted because DRDR had no funds for moving into the latter diffusion stages.

This does not imply that no implementation funds are available--they obviously are through NCEC, through the Center for Educational Reform, through private foundations, etc. We know of many projects (such as the Wisconsin Multi-unit School plan) that are heavily funded for dissemination and implementation from these outside sources. The point, however, is that regular DRDR funds are slim, that much time is lost running from agency to agency, and that implementation efforts are remarkably fragmented and disconnected at present. As the director of planning at one lab stated it:

> The Feds are a real pain in the neck about this dissemination business. Our researchers argue long and loud that they can't really do their job unless they disseminate, install, and test their products. The Feds, however, won't put up the money, and continually say it's not our job. By default if not by plan they show that they believe in the hand-it-on philosophy, and hardly anybody I know thinks that's the way it's really done. So we have to go outside the R & D network for funding--to publishers, (who aren't that excited about such a high-risk operation), private foundations, or other OE agencies. It's a real hassle, and it severely restricts our work. They want impact; they want results, but they aren't willing to pay for the dissemination and implementation efforts that are so critical if we are ever to have that impact. Why won't they put up the dough to make it work?

Interestingly enough, the feedback from Washington on the R & D network's role in diffusion and implementation is very confusing. One day the message seems to be "Make more impact, get more field involvement," but the next day the word seems to be "Stay away from dissemination, that's not your job." Everett Hopkins, director of the National Laboratory for Higher Education, discussed one conflict between the Washington evaluators who said NLHE was doing too much dissemination, and the lab researchers who felt it was critical (See Table 2 for details). The message from Washington in this case was clearly to stay away from diffusion. The response of the lab, however, was that without diffusion they really could not do their job.

However, many center and lab people insisted that in spite of OE's anti-implementation policies they still are evaluated largely on the impact that programs have on the field educational setting. There is much resentment that can be summed up in this quote from a lab director:

> "Damn it! They tell us not to do so much implementation--it is not our job. They won't give us money for it, at least not through the direct budgets. But then when they come around to check up the first question out of the evaluator's mouth is how much direct impact we are having on the kids in schools. It's crazy; the budgets and the policies don't match the evaluations."

We do not wish to imply that everyone agreed on the need for more involvement in dissemination, for there were a number of people who believed the anti-dissemination policy was correct. For example, some researchers felt that excess attention to dissemination and development would undermine their research roles. These comments were especially strong among university-based center staffs. In addition, there was a compelling argument about funding capacities: as low as the funding is at present, it would be silly to dissipate scarce resources by plunging into high-cost implementation projects. Clearly in the minds of many people large-scale implementation operations would be a mistake that would sabotage the key thrust of the centers and labs, drawing them away from what they do best into what they do poorest.

TABLE 2

THE LAB'S ROLE IN DIFFUSION AND DISSEMINATION:
AN EXCHANGE OF VIEWS BETWEEN A SITE VISIT TEAM
AND A LAB DIRECTOR (Fall, 1971)

I. The Site Team's Charge:
The National Laboratory for Higher Education Does too Much Diffusion and Dissemination

> "While every research and development enterprise is faced with the decision as to the precise deployment of resources among the finely structured elements of the operation, the gross divisions as between diffusion and dissemination and research and development itself should not be difficult to develop. In the case of NLHE there appears to be a substantial overemphasis on diffusion and dissemination."

II. Lab Director Everett Hopkins' Reply: (quoted by permission)

> "This is a valid criticism <u>if</u> one accepts the assumption that educational laboratories should not be concerned with the problem of later dissemination and diffusion - i.e. that the functions of dissemination and diffusion are someone else's problem, and therefore the laboratories cannot afford the time to involve fully the schools or institutional personnel throughout the developmental process. Their involvement is necessary first, to obtain the user's help in developing the best possible products; and, second, to ensure ourselves <u>and</u> the users that the laboratory is developing products and processes that have maximum utility in actual school situations, that the products are easily installed, that self-instructional training materials are provided for their use, and, most of all, that they can be provided at a cost that the users can afford. These factors, to NLHE, are integral to the "developmental process;" and, if properly attended to during the various developmental stages, then dissemination and diffusion will follow with little difficulty because the need for the products and their utility will have been established through cooperative efforts with prospective users. NLHE has not overemphasized diffusion and dissemination (except for IMS), although there has been considerably more concern at NLHE than one normally finds in R & D centers and laboratories for <u>developing</u> products that will have a built-in ready market as soon as they are ready for widespread dissemination and diffusion. With IMS, NLHE was given no alternative other than to support product development with substantial funds from sources other than DRDR.

The nature of the supplementary funding and the direct involvement of dozens of schools and three state departments of education resulted in a widespread demand for the product for which the schools were willing to pay. In our opinion, this should be a strong "plus factor" in evaluating our developmental efforts, rather than negative one. OE is supporting a number of diffusion efforts, and other products are risking no diffusion at all, when in our opinion the preparation for diffusion (i.e. building the demand on the part of potential users through their involvement in the developmental process) is a responsibility of the developer. What other product, besides IMS, is being paid for by approximately 175 schools, after three years of developmental effort and a DRDR investment of less than $700,000? Is this a legitimate basis for criticism?"

D. RECOMMENDATIONS

The issue of whether it is appropriate for the centers and labs to go heavily into dissemination and implementation is a critical issue that permeates the entire scene. There are obviously strong arguments on both sides. To take sides in such a complicated, touchy debate is to insure disagreement from many; not to take sides is to join the drift that is characteristic of the present situation.

Consequently, we wish to take a definite stand: namely that the R & D network should have a much heavier role in dissemination and implementation efforts, that staff should be supplied for this, that organizational budgets should be revised to reflect this, and that additional funds be included to support the very costly implementation process.

We take this stand because we are impressed with the logic for organically linking research to dissemination. Non-linear research models are the way research is really done. The "hand-it-on" model is weak and ineffective because information from implementation must be fed back into the development phases. This is best accomplished when the same people are involved to a significant degree in the entire process. It is because we believe in a definite model for research that we have a definite opinion about how much implementation the centers and labs should be doing.

Of course, the arguments to the contrary are reasonable: university-based researchers cannot do implementation well; money has not been and is not now available; heavy implementation might overwhelm the research efforts; present organizational structures of the centers and labs are simply inadequate to handle heavy dissemination and implementation efforts. All these are reasonable, salient arguments. However, they seem to reflect the <u>current situation</u> rather than what should be done. That is, perhaps the staffing pattern is wrong and needs a better mix between researchers and developers;

perhaps the money will be more available if this was a clear mission of the centers and labs and if they start having more impact on schools; perhaps current organization of the centers and labs needs radical reshaping.

In sum, we take a strong position that the centers and labs need to be in the business of dissemination and implementation, primarily because we believe that this will result in better research and will achieve more impact on the educational field. We offer the following recommendations:

Recommendation 6: Clear mission statements should be developed showing OE's and NIE's commitment to dissemination and implementation within the center and lab network.

Recommendation 7: The plans for NIE should clearly include dissemination and implementation aspects. The "hand-it-on" philosophy must be severely questioned, and plans for setting up NIE as research and NCEC as the implementation arm must be revised.

Comment: That does not mean NCEC is a bad idea, it just means that all the eggs should not be put in that carton. Freezing NIE out of implementation will probably severely limit the capacity of NIE to effect educational reform, and would be a clear victory for the "hand-it-on" approach.

Recommendation 8: Center and lab budgets must include large-scale funds for dissemination and implementation.

Recommendation 9: Center and lab staffs must be reorganized to reflect this emphasis. (More on that issue later)

Recommendation 10: Evaluation processes should increasingly include concrete emphasis on implementation and dissemination, instead of the vague, disconcerting statements that now give ambiguous direction.

This philosophy and this set of recommendations color everything else we will say throughout the report. We are concerned with impact on the educational reform process, and we believe that stressing dissemination and development will have a major, visible, and positive effect.

To avoid being misunderstood on this point, however, let us add an additional comment. To argue for an R & D role in implementation and dissemination does not mean that the centers and labs must be the only ones to carry the burden, or even that a major portion of their efforts be devoted to dissemination. Certainly the centers and labs would be violating their critical R & D roles if they became retailers of finished products all over the nation. National dissemination would simply be too expensive and effort-consuming for any individual lab or center to implement, and such efforts are begger done by large-scale dissemination efforts such as NCEC. However, our basic point still stands,for at present there is not enough implementation and dissemination effort to provide the necessary field experience and feedback that comes from actual proto-type testing in a client setting. There is a serious need for more effort in that direction, not necessarily on a national level but at least locally and regionally.

V. STAFFING PATTERNS

In the last analysis, the plans and goals of the R & D network must be translated into action by people, the people who administer the centers, staff the research projects, man the field outposts. At the very nerve center of every organization is its staff, its personnel who translate visions into action, who use organizational structures to accomplish goals.

When these institutions first began, they represented a new type of organization: programmatic educational research and development organizations. They required several years of experience to learn what they could do and how best to do it; the types of professional expertise needed had to be learned; a proliferation of new specialties was required. In this section we will examine some staffing issues and make recommendations on changes urgently needed for the health of the institutions. Issues to be examined are:

(a) The professional staffing issues: what happens when professionals trained in academic disciplines are subjected to the demands of programmatic research and development rather than traditional academic project research?

(b) Disciplinary backgrounds of professionals now at work in educational R & D.

(c) The effects of part-time commitment, and the balance between academic and non-academic staff members.

(d) Staffing problems of the laboratories contrasted with those of the centers: the general issue of the professional reward system.

(e) New professional specialties in educational research and development: the place of the linking professions.

A. ACADEMIC PROFESSIONALS AND THE DEMANDS OF PROGRAMMATIC RESEARCH

Decision makers in education and other fields level a number of telling charges against social scientists: they are too abstract; they have an "ivory

tower" mentality; they ignore the real world and focus exclusively on their little thoretical empires. The social scientists refuse to work in programmatic enterprises that require cooperation, since they were trained to be scientific loners. "Academic production" is endless piles of esoteric articles instead of solutions to real problems. Consequently, social research has an air of artificiality about it.

Policy makers who come to social scientists for advice often go away empty-handed. A local school superintendent in California addressed exactly this charge to the staff of one research and development center. "They're always chasing theoretical rainbows, and frankly I doubt that there's a pot of educational gold at the end!" Disciplinary prestige is usually more important than public service. Social scientists, some would charge, believe in doing good on weekends, but doing social science on workdays. Moreover, when social scientists offer advice, the whole mentality of the academic disciplines argues against taking responsibility for implementing that advice.

In summary, the organization of much social science research and the professional norms of social scientists militate strongly against effective applied policy research. The separation of social scientists into disciplinary departments with circumscribed methodologies, clear disciplinary loyalties, and anti-service value systems has a strong negative impact on applied research. Interdepartmental efforts and interdisciplinary programs have rarely been very successful; "When they are successful they often have the same characteristics as basic research in the disciplines. Thus a psychologist and neurophysiologist working on esoteric brain-wave projects are not "applied" researchers merely because they are "interdisciplinary." Applied work, whether inside or outside one's discipline, has not been held in high esteem. Work that has social

problem solving as its goal does not bring rewards in a world that measures only articles, monographs, and research reports as valid evidence of scientific work. Often there is little interest in the work's impact in helping ameliorate real world problems. Fragmentation, with every man and every discipline on their own, makes it difficult to address the real issues in the field. Methodologies for applied social research have been slower in developing than methodologies appropriate for "conclusion oriented" research. Theoretical paradigms used by the social sciences often are constructed so that practical implications are systematically excluded as legitimate subject for investigation. The issue was well stated in the report of the Behavioral and Social Services Survey:

> Many academic scientists value the prestige that their contributions to basic research and theory give them in the eyes of their peers more than whatever rewards might be obtained from clients who would find their work useful. It is no wonder that university scientists prefer the kind of research that is satisfying in itself (because it is self-initiated and free of restraints) and leads not only to scientific knowledge, but also to respect and status tendered by those whose judgments they value most. It is no wonder, either that their value systems are passed on to their students. Thus, much of the applied work in disciplinary departments is done by those who for one reason or another do not compete for the highest prizes of their disciplines*

Into this situation come the educational R & D efforts with the mission of improving educational systems through social science research. Not surprisingly, it is uncommon to find teams combining members from different academic disciplines attacking a problem together, consciously attempting to blend the insights of their disciplines to find solutions. Not surprisingly, academic staff members are frequently unenthusiastic about involvement in programmatic research where actions are governed by actual needs in schools rather than by purely scientific considerations.

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*The National Academy of Sciences and Social Science Research Council, The Behavioral and Social Sciences: Outlook and Needs (Englewood Cliffs, N.J.: Prentice Hall, 1969), p. 93.

In the few years since these institutions came into existence, marked changes in staffing have taken place. Several of the centers have focused their work into well-defined areas in contrast to a previous diversity of goals. The university-based centers have become much more developmental in orientation as the result of strong pressure from Washington. As a result there has been a high turnover of staff, and the day to day work of staff members has changed considerably. The history of staffing at several institutions shows a movement away from heavy reliance upon professors. An organization faced with failure if it cannot affect school practice cannot afford to tolerate academic game playing. In the university centers the non-faculty staff members have increased in numbers and importance. The centers have begun to rely upon people who will carry a program through development. In some instances faculty people are found who will do so; in other instances non-faculty people must be found with the strength and competence to do the development. At the Wisconsin Center, for example, non-faculty people with the designation of "scientist" conduct the development phase of each program. As these changes occur in staffing, and as programmatic efforts are pressed harder, a number of traditional academic norms come under heavy stress:

(1) Criticism only by one's professional peers

People involved in development may find themselves under criticism from research management (who may be from some other discipline), from federal funding officials, by the evaluation staff of his own laboratory or center, by teachers and school administrators. For academics this is a sharp reversal of roles, and relations are often strained.

(2) Research autonomy and self-scheduling of time

Professionals in programmatic research and development find themselves accountable to people who are not subordinates, unlike a professor with his own research assistants. It is no longer merely your own personal business when you complete your work. Work habits become very visible.

Several of the laboratories and centers have adopted highly systematized procedures, some with hourly accountability of time. There are often formal decision and review points on every project, with possibility of termination if acceptable results are not shown. This is a radical departure from traditional research styles.

(3) Disciplinary purity and emotional disinterestedness

Sometimes the niceties about what constitutes a sociological problem or a psychological approach get disregarded in the efforts to survive bouts with actual problems out in schools and communities. The stance of scientific detachment and emotional disinterestedness is severely challenged when a researcher tries to promote changes in the educational plight of Spanish-speaking children in Texas or children in the poor mountain districts of Appalachia.

(4) Changing Reference Groups

Some professionals remarked that their reference groups changed significantly when they became heavily involved in actual field problems. They found themselves looking to administrators and teachers for recognition in their work, rather than being so concerned about their reputations in psychology, sociology, or education.

In each of the four changes above there are fundamental matters concerning the profession of social science. Some administrators argued that research and development institutions should keep their social scientists "pure", firmly within their disciplines. This is the management's stance at the Southwest Regional Laboratory in Los Angeles, for example. According to this formula, a basic scientific researcher is assigned "functionally" within a large R & D organization. A psychologist will do basic research for a program, then drop that program as it passes into other hands for different stages of the program. The psychologist will live by the norms of the profession of academic psychology. Meanwhile the organization will do development work, combining in a series the efforts of different social scientists. This formula denies the validity of applied social science as a separate discipline. Here, the scientists do basic science, while the organization, using diverse kinds of employees, does the development.

At other institutions, social scientists were urged to change roles, to drop some of their traditional norms, and to move directly into "practical" work. In that situation academic social scientists find themselves practicing something quite different. They carry the work through all stages, from concept development to hypothesis testing to development, field testing, and implementation. For example, staff members at CASEA or at the Center for the Study of Evaluation reported that their work became radically different from traditional academic project work as they moved into applications and took the personal responsibility for carrying theory into practice in schools. However, as social scientists move into practical areas they experience a significant role contradiction, for at the present stage of development in social science disciplines professionals in applied work are under pressure to continue writing for basic research publications and doing basic research unrelated to applied concerns.

The research and development system is an excellent place for the birth of a coherent new discipline of applied social science with its own norms and reward systems and methodologies. The directors and staff members of these institutions should take the lead to end the ambivalence of many professionals about applied work by establishing this new discipline. Basic researchers would still be employed in research and development institutions, just as both physicists and engineers may be employed in the same endeavor. However, the distractions of the professional demands of the traditional social science disciplines can no longer be permitted to hamper the development of applied social science.

This is a call for leadership by those who direct research and development to continue the task they are already doing, forming a distinctive new discipline

where the solutions of social problems will bring professional esteem, where rewards will be clearly linked to problem-solving, where methodological problems peculiar to applied work will be clarified. Applied policy research is the prime role of the R & D system, but we know virtually nothing about the management of such systems; about the optimal reward structures; about staffing patterns; about project management. The existing research on R & D policy deals largely with physical scientists in industry and the military and is of questionable usefulness for the social sciences and education. The following recommendations suggest some ways we should begin studying the problem.

Recommendation 11: DRDR or some other federal agency should mount a long-range program within the R & D network to study the reward structures, project management, and other problems associated with applied policy research with a view to making the R & D effort more attractive to high-level social scientists and other scholars.

Recommendation 12: The National Academy of Education should establish a yearly award for the best piece of applied policy research in education done by social science team effort. (A team, rather than an individual should be honored to encourage the kind of effective cooperation so critical to good applied research). If possible a cash prize should be offered, and there should be a conspicuous presentation of the award at a major national educational meeting, such as AERA.

B. DISCIPLINARY BACKGROUNDS

Figure 2 shows the disciplinary backgrounds of key R & D personnel. Not surprisingly, the largest number of degrees are in education, with a predominance of educational administration. Among the professional employees of the laboratories and centers there is an overwhelming dominance of psychology among the social sciences. Figure 2A presents a summary of doctoral degrees among the professional staffs; Figure 2B provides a summary of the disciplines among professional staff who do not hold doctorates.*

*The information in Figure 2 is from the following sources. For thirteen institutions it is drawn from the personnel resumes given in the Annual Budget Justifications. Although this is not a complete listing of all professional personnel, it presumably mentions the key people. For six institutions the information in the Annual Budget Justification could not be interpreted for this purpose so personnel rosters were used to gather information. Only one institution failed to reply to our request for data.

FIGURE 2: DISCIPLINARY BACKGROUNDS OF KEY R & D PERSONNEL

Figure 2A
Disciplinary Backgrounds of Key R & D Personnel with Doctorates

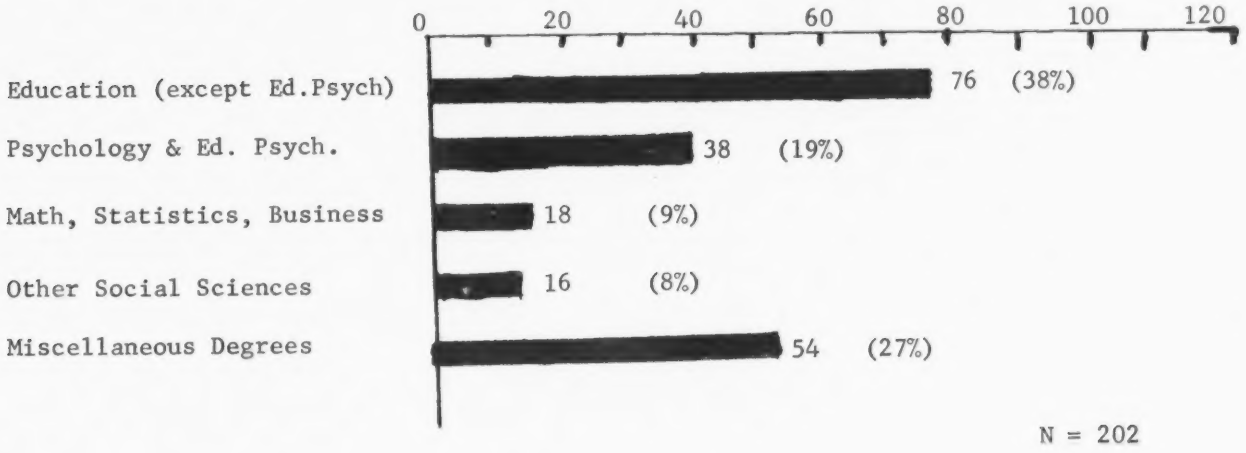
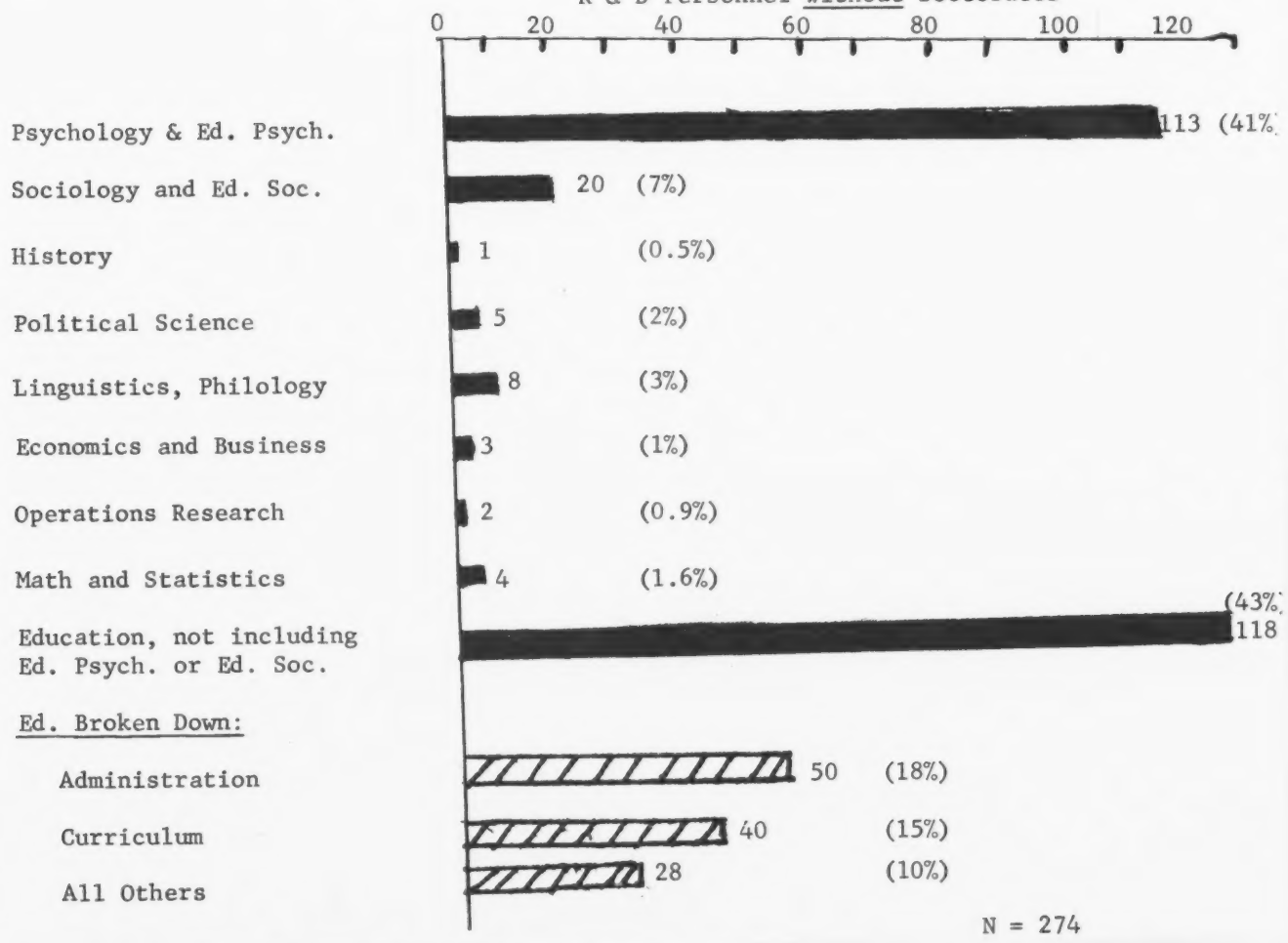


Figure 2B
Disciplinary Backgrounds of Key R & D Personnel without Doctorates



The picture that emerges from our analysis parallels an earlier study on the same issue. The so-called "Syracuse Report" found that in 1968 there were 265 professional employees in the federal R & D centers (the report did not deal with the laboratories).* Of these 132 held advanced degrees in education, 63 in psychology, 33 in sociology, 19 in other fields, and 18 could not be identified. Incidentally, for sociology the figure is rather inflated, for it includes 17 members of the Department of Social Relations at Johns Hopkins University, not all of whom were sociologists.

It is difficult to say what effect the dominance of educationists and psychologists has on the R & D enterprise. We simply do not know what would happen if the mix between psychologists, sociologists, economists, political scientists and others were more balanced. However, Thomas Kuhn, the author of The Structure of Scientific Revolutions, is probably correct in arguing that social sciences use widely different "paradigms" (conceptual frameworks) for tackling issues and that these divergent paradigms have serious consequences for research. Coming at the issue from different stances, each discipline identifies different problems, uses different methodologies, and arrives at different conclusions. Obviously policy recommendations and educational innovations coming from these divergent perspectives are likely to be quite dissimilar. The dominance of educationists and psychologists may have limited the R & D vision considerably--not because their problems were not important but simply because the range of issues was narrower than it might have been.

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*Lindeman, John, Stephen Bailey, Joel Berke, and L.H. Naum, Some Aspects of Educational Research and Development in the United States (Syracuse: Policy Institute of the Syracuse University Research Corporation, 1969).

In order to determine the range of concerns, at one point we began a content analysis of titles of published work from the R & D network. We abandoned the idea when the work-load grew to enormous proportions,but we still think it would give an interesting picture of R & D efforts. From our informal, half-done attempt, we believe--subject to later contradiction, of course--that the range of issues confronted by the R & D network is extremely limited. From that review, the overall impression was that many central issues were constantly ignored. To be sure, because of the fractionation still existing in the centers and labs almost any topic that can be thought up will have someone working on it, so isolated small-scale examples can be conjured up on virtually any topic. However, in terms of major programmatic efforts, systematic and well funded, there seems to be very little research on the following critical issues:

(1) School integration and its effect on both majority and minority children.

(2) The financing of schools in order to equalize per capita expenditures (especially now after the Serrano vs Priest decision in California that undercuts property taxes as the basis of school funds).

(3) The "voucher" proposals as alternatives to school financing.

(4) Alternative, experimental schools as sources of educational innovation.

(5) The effects of busing and political conflict on the learning environment of education.

(6) The connections between education and the social stratification system.

(7) Alternative educational programs in industry, the military, and in other parts of the private sector.

(8) Political decision-making at the local, state, and federal levels.

(9) Evaluation and tenure policies for teacher performance. Pay scales, training credits, and in-service financial arrangements.

(10) Community control and the dynamics of black separatism as it intersects with federal policy on integration.

(11) Teacher career patterns, the job market, and subject specializations of current and future teachers.

(12) The changing role of women in education and the impact on the socialization of males and females in a changing sex-role context.

With a little thought this list could be expanded to cover several pages--and every item would be central to the educational process. Why is the R & D network neglecting research on these issues? We would argue that it is partly related to the narrow range of disciplinary concerns of the men who run the R & D network, who set its priorities, and who staff its research teams.

Recommendation 13: A study should be immediately initiated to delineate the range of topics addressed by the R & D network. The study should be done by an interdisciplinary task force composed of people who are not within the traditional educational mold--social scientists, administrators, teachers, government officials who have little connection to the present R & D world view, people who could bring new ideas to the R & D task-definition.

Recommendation 14: Steps should be taken by the R & D organizations and by funding agencies to broaden the social science base of their staffs. Economists, sociologists, political scientists, anthropologists, historians, and social analysts from other backgrounds should be added to the staff rosters in significant numbers.

Neither of the two recommendations above should happen over night. Certainly the R & D network has its own unique history and its own unique competencies that have slowly developed over the years. It would be foolish to shake them up suddenly-even assuming anyone would seriously want to. However, we firmly believe that there is serious need for expanding both the task definition and the disciplinary mix of the R & D network's personnel base. In recruiting those from other disciplines great care will be needed to avoid those who would stake out their territorial rights by discipline. What is needed is those who can catalyze task-force efforts in which the mix of disciplines will enrich the resources brought to bear on problems to be solved.

C. PART-TIME COMMITMENT BY UNIVERSITY FACULTY AND THE BALANCE IN UNIVERSITY CENTERS BETWEEN ACADEMIC AND NON-ACADEMIC STAFF

The university-based R & D centers employ some professionals who are faculty members and some who are not. Typically the faculty members are part-time associates with major research and teaching interests elsewhere, while the non-faculty employees work in the centers full-time. However, we found that the term "part-time" is deceptive. Some individuals formally classified as "part-time" devote most of their energies to research and development.

Serious management problems have resulted from the utilization of part-time faculty members and from the necessity of combining faculty members and non-faculty colleagues into effective organizations. As our section heading indicates the problem has two parts, the part-time versus fulltime problem, and the faculty versus non-faculty status problem.

The university-related R & D Centers have two needs which are not easy to meet and even more difficult to reconcile. First, they need the best brains they can get to provide disciplinary and theoretical input. Location on university campuses is supposed to facilitate getting this expertise. However, the best people in the academic disciplines are primarily interested in basic research. They have multiple research and teaching commitments in addition to their work in the R & D centers, and if they work in the R & D center, it is usually only on a part-time basis. They often have little interest in working beyond basic research. Yet the R & D organization cannot stop at basic research, for success is to be measured by improving schools, not impressing academic colleagues.

In some instances, the impossible situation has resulted where personnel with only partial interest in the organization's goals and with only a part-time commitment to the work have the highest status and influence in the organization. The consequences of this imbalanced state are obvious: morale suffers among the non-faculty staffs, development and implementation are neglected, and field impact is low.

While faculty members bring many needed skills to the R & D Centers, there is also a need for strong non-faculty staff members. In most of the centers we found that there has been an increase in the numbers and status of non-faculty personnel. Centers employ non-faculty professionals for many reasons, among them being the following:

(1) They represent areas of expertise which are not appropriate or acceptable in traditional faculties. Applied social scientists, dissemination specialists, and legal specialists, are only a few examples.

(2) They are needed in larger numbers than universities are able or willing to absorb as faculty members.

(3) The funding system makes it essential to employ some personnel who are not locked into tenured positions. Institutions cannot risk having large tenured staffs in the event of major funding shifts or terminations.

(4) It is necessary for the health of the R & D organizations to have a roster of professionals who can devote their full energies to the work demands without the distractions of an academic career. For some professionals teaching and academic activities are very important; others, however, are willing to give their full commitment to research and development as their prime goals.

To sum up this critical issue, the R & D centers must simultaneously solve two problems -- recruiting the best brains on the campus without letting them divert the center from developmental goals, while at the same time employing strong non-faculty people and giving them the necessary status and incentives. The non-faculty people must be of highest ability, for development is just as

important and difficult as traditional basic research.

We doubt whether it is possible to operate an effective R & D organization on a university campus without some viable solutions to these problems. It must be recognized that solutions will inevitably strain traditional organizational structures and status systems on campuses. However, since most people in education believe traditional structures and status in public schools must change it seems reasonable to ask that professors tolerate changes in their own situations.

As we talked with Center directors, we found many different solutions to the problems described. In the centers at Oregon and UCLA, for example, faculty members participate fully in research and development on a full-time basis. Heavy commitment to the center is generally expected of everyone so the part-time problem is minimized. Status differentials seem minimal between faculty and non-faculty personnel. In these like a number of other places, Oregon and UCLA reported that the high commitment of the faculty was only achieved after the centers' work had been tightly focused by dropping programs and personnel when they lacked strong commitment to development.

Turning to an alternative approach, at the Wisconsin center non-faculty professionals with the title of "scientist" direct the development work. The center at the University of Texas employs strong non-faculty personnel in a highly systematized operation. The Pittsburg center is notable for the quality of its work and also for its heavy non-faculty to faculty ratio, averaging about 6 to 1. This approach tries to mix strong faculty input for conceptualization and research with strong non-faculty concerns for practical problems and field issues. The non-faculty staff is quite large, and it contains high-status, high-influence members who can balance the faculty influence.

In short, there seem to be two models of success in using faculty: making faculty full time, and balancing faculty with heavy staffs of non-faculty. There is a third model which has worked less satisfactorily, the situation where there is predominantly part-time faculty with weak back-up staffs. The non-faculty staffs are "weak" not in the sense of quality, but simply because there are very few of them and because they typically suffer serious status disadvantages compared to the faculty with whom they work. The R & D centers with good reputations for basic research but poor track records on development typically have this pattern of heavy part-time faculty and a few lower-status non-faculty members. Consequently, the typical academic concerns--basic research, publishing, teaching graduate students, playing to the academic audience--push out the developmental concerns, making the centers more isolated from the field users and less able to achieve practical payoffs.

In our estimation, Type III (heavy part-time faculty with little staff back-up) is the least viable staffing pattern if the prime concern is for high practical R & D payoff. This entire report, of course, is concerned with the problem of getting R & D efforts out to the field, with best organizational arrangements to promote effective practical application. If that is a major concern, then in our judgement the Type III staffing pattern is the least likely to achieve it. That is not to say that these centers are weak--on the contrary some of the centers with the best scholarly reputations are at this end of the continuum. However, it is probably true that these centers are among the least practical, least field-oriented of the entire lot. No one is arguing that the campus location is bad for the work with its access to academic departments and other advantages, or that the tenured faculty system with its protections against federal budgetary whims and fads should be changed. Our argument is rather that effective research and development does not fit easily and naturally in academia, and to make it work some difficult problems must be solved. The following recommendations are offered:

Recommendation 15: In R & D centers located on university campuses deliberate procedures should be implemented to equalize the status, rewards, and prestige for faculty and non-faculty professional personnel recognizing that they perform different functions which are not to be considered superior and inferior.

Recommendation 16: In addition to employing fresh PhD's and various subordinates without academic credentials Centers should employ professionals with established reputations at maximum salaries for crucial developmental roles.

Recommendation 17: University personnel structures now provide numerous prestigous jobs which are not faculty jobs. Examples would be associate deans for administration, director of alumni relations, admissions officers. Means should be sought to include non-academic research and development officers in this group.

Recommendation 18: For faculty members, participation in R & D should require a major commitment of time and commitment to following through to development. Such commitments should be for terms, such as the duration of a stated program, rather than indefinite. This would probably entail increasing the average proportion of faculty time on the R & D budget, accompanied by serious efforts to reduce regular university obligations.

Recommendation 19: The mix between faculty and non-faculty must be considered carefully. To achieve high practical payoff the mix should probably be heavily balanced toward field-oriented personnel, many of whom have status on par with the faculty members.

E. CONTRASTING THE LABORATORIES AND CENTERS: PERSONNEL REWARDS

We found many people throughout the laboratory network who had left academic positions, most citing as their reason that laboratory work offered hope for generating large scale improvements in educational systems. In contrast to traditional academic project research that prospect was exciting to them.

However, at this time we find more evidence of desires to move in the other direction, with laboratory staff members frequently expressing a desire to find a university job. The director of one laboratory listed several key staff members who had departed for university jobs in the preceding year, and he complained of high personnel turnover. Another laboratory director regretted that employment in his institution made staff members so visible throughout the world of academic administration that they received many job offers.

With the current depressed job market the problem is not to find people, of course, but to find and keep the strongest people. There is evidence that large scale programmatic R & D can make successful assults on educational problems. Most of the significant problems require massive, sustained efforts that some of the laboratories are just learning how to make. The effort will be crippled without the strongest men in all relevant disciplines committed to this work.

A number of staffing problems plague the laboratories. We do not have systematic information on turnover rates or morale problems, but we nevertheless have the distinct impression that both are higher in the labs than in the centers. This is due to a number of factors;

(1) There is greater job insecurity in the labs than in the centers for senior personnel. Senior personnel in the university-based centers usually have tenure, but not in the labs.

(2) Academic personnel in the labs are cut off from their professional peers.

(3) As they change career patterns, lab personnel find that they may become increasingly obsolete in the academic disciplines from which they came. Faced with job insecurity in the area where they are going, i.e., R & D Work, they feel cut off at both ends.

(4) Research efforts are more rigidly programmatic, and there is much less freedom to pursue individual interests, or to achieve academic and professional credit for personal effort.

Certainly we do not mean to imply that the labs have monumental staff problems, for in fact their staffs seem dedicated, hard-working, and capable. Nor do we mean to imply there are no intrinsic rewards in lab work, for there are many activities which a person simply could not do well in the university setting, including serious applied and developmental research. However, there are unique, persistent problems which bear examining, and it would be foolish to pretend they do not exist. It is obvious that laboratory managers and OE planners must constantly search for better ways of attracting and holding key personnel. A number of suggestions seem in order: higher salaries compared to universities, more leave time, a program of sabbaticals to catch up on disciplinary specialities, higher fringe benefits, and opportunities for close interaction with university-based scholars. However, this list only opens the discussion and the subject needs very close examination, as suggested in this recommendation:

Recommendation 20: Research is needed on solutions for certain key management problems common to the entire R & D network. One such problem is development of a reward structure for professional laboratory employees capable of attracting and retaining the best professionals in competition with top universities or government positions. The USOE should fund such research.

F. NEW PROFESSIONAL SPECIALTIES IN RESEARCH AND DEVELOPMENT

The status of school superintendents is well known. Similarly, professors conducting research have an accepted place in the education profession. In the world of research and development, however, numerous new professional roles exist that have no established status or reputation. We talked with many people in such roles, and from them we got a picture of a whole new class of specialties within applied social science. These emerging specialties can be roughly grouped together under the term "linking professions."

The term "linking profession" is a recognition of the complexity of the work, the task of moving new concepts, procedures, materials or structures from research into everyday educational usage demands creative skills, serious training, and methodological tools at least on par with those needed in basic research. Up until now these skills have been underdeveloped. Some linking work has been done by commercial publishing companies, some by fads, trial and error, and word of mouth. Those who do it professional have had little respect either from the professors who do basic research or the administrators in the schools. Neither the professors nor the administrators can afford to have such negative attitudes in the future; both need the linking professions.

We observed several varieties of linking professions.

(1) Management personnel.

The management activities in research and development are linking roles of the highest order. Managerial success is dependent upon successful accomplishment

of the linkage of research and practice.

(2) The "developer" role.

When the role of "developer" is accepted as a professional specialty, it is a linking role. Not all R & D managers regard development as a field of work in the same sense that research constitutes a specialty. However, we talked to many professionals in the laboratories who called themselves developers without apology. The developer's task begins with a well-developed and thoroughly tested theory which can be used raw material for producing innovations that teachers and administrators can use. The object of the work is not to refine the theory, but to subject it to the practical test -- whether it is helpful to someone in the field. Developers argue that nothing reveals the conceptual flaws in basic research better than trying to put it to practical use. Skillful developers are frequently driven back to do the basic research all over again.

(3) Diffusion and Implementation Roles

When the products of an institutions are primarily research reports addressed to scientific colleagues the task of dissemination is relatively simple. However, it is vastly more difficult to address the same material to teachers and administrators, and to translate it into operational procedures.
Few new teacher training materials or curriculum materials, finding the appropriate channels for moving the material into the educational system is not easy. We found competent, highly paid professionals mapping uncharted seas in the work of diffusion and implementation.

(4) The change agents.

A fourth variety of linking role is found in institutions engaged in change support work. These are the direct-contact "change agents." The role of change

agent is not new of course. In education it will be expanded in federal programs now in the planning stage. Examples of this role include:

--the organizational specialists at the Center for the Advanced Study of Educational Administration at the University of Oregon. Professors from the institution go out in teams to form "linking organizations" in school districts. These are formal organizations composed of professors, teachers, and administrators, organized because "it takes an organization to change an organization."

--the community organization specialists at the Center for Urban Education in New York City.

--the organizers of the educational cooperatives in Appalachia, working out of the Appalachia Educational Laboratory in Charleston, West Virginia.

--the Educational Development Officers at work in community colleges under the aegis of the National Laboratory for Higher Education in Durham, N. C.

The linking professions are crucial in educational research and development. Up until now, the road to security and/or eminance in education has been through professorships or superintendencies. It is time for the linking professions to come into their own.

Recommendation 21: Efforts should be made through organizations in educational research and educational administration, and in schools of education, to advance the stature of the linking professions through professional recognition.

VI. RELATIONS WITH CLIENTS AND FIELD USERS

To reiterate once again, the goal of this research was to study the organizational arrangements that produce greater impact on the field users in educational reform. As the investigation continued we were impressed by the variety of contacts which labs and centers maintain (or fail to maintain) with field users of their research. Increasingly it appeard that the labs and centers with the greatest impact on schools had evolved rather elaborate relationships.

This is related to their relative success in disseminating their products, a process which demands intimate field contacts. At first glance, close relationships with the field is an "effect" of a successful product or program development; it comes as the end product. However, on closer inspection we came to believe that such intimate sustained field contacts were also a major "cause" of success in these centers and labs. In successful development, interaction with field users was built into the program from the very beginning as a critical element. The more we looked, the more this issue loomed large as a key element in successful R & D efforts.

The question of how involved the labs and centers should get with field users of their innovations is directly related to a philosophy about the amount of dissemination and implementation the R & D institutions should do. If one takes the position that programmatic research is a step-by-step progression in a hand-it-on style, then close contact with field users is unnecessary in the early stages. If one believes however, that research is non-linear and dependent on feedback, then field relationships are central from the beginning.

Earlier in this report we strongly favored a non-linear theory of educational

R & D. One major policy consequence of that bias was the need for a strong commitment to dissemination, diffusion, and field testing. The conclusions in this section of the report parallel the previous one. We believe in the non-linear model of research; we believe in constant feedback into the R & D effort from the field; and we reject the hand-it-on philosophy of research. Thus we strongly support close involvement of the centers and labs with field users in every stage of the effort.

This does not mean that labs and centers should become service organizations, consultants for specific local problems, or fire-fighters who rush around putting out minor blazes. On the contrary, that kind of involvement would squander scarce resources, wear out R & D staffs, and muddle things more than they are now. Such localized, fragmented efforts would lessen the impact of R & D rather than increase it, and confuse the research effort more than inform it. However, attention to field users and field problems in a systematic, integrated fashion that dovetails with the research aims is not only possible, it is mandatory for an effective, useable output.

Many professionals in the labs and centers feel strongly about the need for interaction with the field. A few representative quotes show how deeply this commitment runs:

> You must go out to solve the problems that exist, not just the ones your disciplinary specialty directs you to. (A program director at the R & D center at Austin.)

> We have always had very strong links with existing institutions, working with them and trying to benefit them, with constant attention to needs assessment in the schools by all kinds of devices. (A researcher at the Northwest Regional Laboratory in Portland.)

> You can't just go out and offer schools programs that are all developed. Schools must be involved from the very beginning in assessing needs, planning, researching, field testing, and on down to the development of

training programs for implementing the materials we develop.
(A program director at Research for Better Schools in Philadelphia).

The variety of contacts between R & D organizations and field users is astonishing. Some are very closely involved, participating on a day-to-day basis with schools. Others are scarcely acquainted with field users at all except as the field furnishes subjects for experiments or surveys. Many labs and centers have a contractual relationship with clients; others have so little contact that it never crosses anyone's mind to put it in writing. Some budgets reflect large payments to the labs or centers by users of services; others are paying the users to test their products. Many labs and centers have full-time liaison staffs to link the R & D effort to the field; others have no one deeply involved in the field, much less full-time staff members. In the next few paragraphs we want to describe briefly some of the practices that connect labs and centers with field users.

A. DEGREE OF INVOLVEMENT WITH FIELD USERS

It is extremely difficult to judge just how involved various R & D organizations are with field users. When asked, people invariably point out many examples. However, it is possible to contrast some heavily involved centers and labs with those which are not heavily field oriented, and to suggest some of the consequences that result from each pattern.

Wisconsin is clearly an example of a center with extremely close involvement with the users of its products. For years the Wisconsin center has worked to build up a tight network with its field users and has succeeded to a remarkable degree. Its operations have included (1) a national evaluation committee composed of scholars, teachers, education specialists and public school people. (2) a very strong liaison with the state department of public instruction in Wisconsin, with a full-time staff member working in a coordinating role, (3) a School

Advisory Committee which includes 60 to 70 school districts, AFT representatives, NEA representatives, and school board executives, (4) contracts with nine state departments of public instruction to disseminate the Center's innovations, (5) relations with six teacher education institutions to implement training programs, and (6) a group of "developmental schools" that agrees to implement Wisconsin innovations on an intensive scale. Obviously this is an extensive program of contacts with field users. Wisconsin puts money, staff, and effort into maintaining a highly developed relationship with field users, and it has paid off handsomely in its vigorous dealings with potential users.

All this had been going on for years when the National Center for Educational Communication decided to pick some good examples of the R & D effort for dissemination, choosing Wisconsin's Multi-Unit School program as one of four major thrusts. (CEMREL's math, RBS's IPI, and Far West's minicourses were the other three.) Now Wisconsin's relations with field users has spiraled upward at a rapidly increasing pace. In 1967-68 there were only a handful of Multi-Unit schools; in 1970 there were about 165; by 1971-72 there are about 700. We believe that this intensive, well-budgeted, field relationships effort is both a cause and an effect of Wisconsin's reputation for heavy impact on educational systems. The field users affect the planning, research, and development and the innovations in turn affect the field users. It's a very exciting, mutually productive cycle.

At the other end of the continuum of field involvement is Stanford. Located with a highly prestigious academic environment and connected with a research-oriented school of education, the Stanford center has been repeatedly criticized for its lack of direct impact on field users. Its claim to excellence has been the high academic quality of its research, but voices of concern have often been

raised because this center seems to have little impact on the "real world" educational situation. Part of the problem is related to staffing, as we will note later, and part of it is related to the choice of research topics. In addition, there is very little contact with schools for anything other than data-gathering. Stanford has a number of small field operations, but they are used almost exclusively for gathering research, not for testing the direct application of intervention strategies that will change daily practice in the educational world. Liaison with schools is very casual; there is little budgeted money for these relationships; there are few contacts at school district levels; no relationship exists with state departments of education; relationships with teacher training programs of the University are tenuous and unclear. Stanford would reply by pointing to a number of small operations. These are not intervention/testing sites such as Wisconsin or Pittsburgh or RBS maintained, however. They are little more than data-gathering stations for academic research.

The contrast between Wisconsin and Stanford points to extremes on the continuum. At best, any estimates of the location of other centers and labs would be a guess. We have our set of guesses, but it would serve no purpose to hassle about who is doing more and who is doing less, especially if it produces no particular advantage for interpreting the situation. We believe that close field relationships are necessary for the following reasons:

(1) They help define the problems that are critical to educators in the field. Educational R & D will have much greater impact if it attempts to solve problems that exist in the field rather than problems that arise within academic disciplines.

(2) They provide invaluable sources of data during research.

(3) They offer constant corrective feedback during the course of development.

(4) They are critical sources of testing sites for highly developed programs and processes.

(5) They form a cadre of interested, ego-involved users who will be valuable allies during implementation phases and during the inevitable political controversies that will accompany a serious attempt to improve educational programs.

We firmly believe that deliberate, intensive cultivation of field users and field relationships is a key to the widely reputed success of such R & D organizations as Wisconsin, Pittsburgh, SWRL, and RBS. Of course, we are trapped in the chicken-egg controversy: did the field relationships cause them to have high impact, or was the success of their programs a generator of the field contacts? We believe it was both, and that close field relationships are a critical component in a successful equation for educational impact. Consequently our basic recommendation is this:

Recommendation 22: Every center or lab should carefully review its relationships to its field users, and should take appropriate steps to build and sustain vital field ties.

We must of course take note of a contrary viewpoint. Many people insisted that too much field contact was just as detrimental as too little. Fears were expressed by some researchers that they were directed toward "petty" problems by people in the field, that resources for research and development were spread too thin with extensive field activities, and that labs and centers too quickly become "service stations" attacking momentary issues while larger ones remain untouched. One researcher at RBS summed it up graphically: "Sometimes I think we've gone overboard cultivating field relationships. At times I'm sure the tail is wagging the dog. We're so damned busy with nitty-gritty that we don't have time to think about the larger issues."

For a few center and laboratory people the problem of overcomittment to the field users may be a problem, but for many others the real problem is isolation from the field, enslavement to ivory-tower mentalities, and restriction

to narrow disciplinary interests.

Let us assume that the argument for intense field involvement is sustained. What are some of the management problems that will have to be faced? Following are some considerations.

B. THE FORMALITY OF THE ARRANGEMENTS BETWEEN R & D ORGANIZATIONS AND FIELD USERS

Some centers and labs maintain contacts with a minimum of formality. Others go to great lengths to ensure clear, formalized procedures with recognized rights and responsibilities on both sides. SWRL probably has the most formalized procedures for relating to field sites, but Wisconsin, CEMREL, and RBS also have very formal relationships. The relatively formalized approach seems to work well. A certain degree of formality ensures that expectations are not misunderstood, that commitments are clear, that financial resources are clearly accounted for, and that feedback to the schools is sustained.

Some institutions obtain only general verbal approval from school district personnel for field activities. Some use general letters of agreement between the research institution and the district. SWRL takes the utmost care in choosing districts in which to work, using numerous criteria. Entry for field testing is made only after a highly detailed agreement has been approved by both parties. Only certain laboratory personnel are permitted to be in direct contact with schools, and their purposes and procedures are checked and doublechecked in advance and documented after the contact. Full reports are always given to districts after work is done. Such procedures are striking in contrast to the familiar, older situation when school administrators and teachers complain that researchers come and go, making use of schools for their research, with their purposes unclear, and without follow-up for the benefit of the district.

Perhaps it is significant that the Southwest Lab with its careful, detailed procedures has far more school districts seeking to be used for field testing and research purposes than it can handle, while two university centers using very informal approaches discussed the difficulties of "getting into" districts to do research. Wherever we find that great care is used in selecting districts and schools for research, where detailed agreements are worked out, and where full feedback is given as a matter of policy, districts are standing in line offering their schools for research and development work.

The Southwest Lab and other institutions describe their relationships with districts as "symbiotic":

> Properly conceived developmental efforts with accompanying time-cost planning to ensure appropriate installation and operation of the resulting products creates a symbiotic relationship between those interested in improving and those operating schools. (From the Program Plans of the Southwest Lab in Los Angeles, April 15, 1971, page 16.)

Recommendation 23: Relations between R & D organizations and field users should have at least minimal degrees of formality, with clear statements of intent, responsibility, and regularized systems of feeding information back to the host schools. This does not necessarily imply elaborate contracts, but it does at least mean that some measure of clarity is achieved and written down for public inspection.

Recommendation 24: All federally funded educational research should explicitly require full reporting back to schools in which the research is done, in a form that is useful to the schools involved. Sufficient funding should routinely be included in research grants or contracts to pay for this, and it should be considered unethical for this not to be done with care.

C. FINANCING FOR SERVICES IN HOST SCHOOLS

There are many different patterns of payment for field activities. In some cases the school districts pay the R & D organizations for services as they test

new products. (The laboratory in Austin derives much of its budget from this source.) Other R & D organizations do the opposite, paying the host school or district to allow them to work there. (The Johns Hopkins center does this; the Pittsburgh Center contributes over $100,000 per year to Oakleaf and Frick schools where it tests its innovations.)

Still another pattern is payment by a third party for the trial use of innovations, a private foundation, some OE office other than DRDR, or the state department of instruction. (RBS, Wisconsin, and SWRL provide examples of this pattern.) Little can be said about different patterns except that they must be designed to fit unique needs and must be tailored to meet available funds. Our recommendation does not deal with a specific type of funding, but with an information flow to help centers and labs know about various financial arrangements so they can explore alternative systems.

Recommendation 25: The CEDAR staff should gather information about the alternative financial arrangements between all its member organizations and their field users and distribute that information widely so that alternative patterns can be explored by each laboratory and center.

Recommendation 26: The federal officials in DRDR should review budgetary arrangements for field dissemination and testing efforts so that budgets may reflect increased emphasis on such activities.

Recommendation 27: Individual labs and centers should review their own budgetary procedures concerning field and client relationships and should more systematically build in such funding relationships.

D. STAFFING FOR FIELD RELATIONSHIPS

The staffing patterns that link R & D organizations to field clients are very diverse. Some centers and laboratories have full time personnel attached to every program for field linkage purposes. Others have absolutely no one on a

full-time basis who is responsible for relationships with schools. Of course, there is a direct relationship between staffing and involvement, with those doing more field work having more staff. We also suspect that establishing the staff positions, even in the absence of much field involvment, would produce more and better field relationships. Even if their need has not been obvious in the past, the existence of such posts will probably promote more field relationships, especially if the staff members are given responsible posts with access to planning and decision-making.

Recommendation 28: Centers and labs which do not presently employ full-time field relations experts should consider planning for such positions. Naturally, such planning must be done in close partnership with ongoing programs and their needs.

One word of caution about field relations specialists seems to be in order. A constant complaint was that linking posts between the R & D organizations and the field were sometimes filled by relatively low prestige, low influence personnel (we hate these value-laden words, but let's be blunt and get to the point.) Often the posts were manned by teachers drawn from the public schools, graduate students on stopgap assignments, or former graduate students who could not immediatedly find other jobs. This is a touchy value judgment and probably will cause anger and/or embarrassment, but it was voiced so often that there must be substance to the complaint. This does not mean that this is a dominant pattern, or that centers and labs do not have powerful field relations staff, or that ex-teachers necessarily lack prestige and influence. It does, however, suggest that is is a significant problem when the field staff does not have the same prestige, influence, and political clout as the researchers or academic personnel. We frequently were presented with examples in which high-prestige faculty members overshadowed a staff member with lesser prestige, with the

result that unique concerns and emphases from the field were lost. To put it crudely, unless the field relations staff has clout comparable to that of the research staff, many of the advantages which may result from solid field relationships may easily be washed out.

Recommendation 29: Field relation staffs must be composed of intellectually tough, high-prestige people who can argue and fight for field input into the R & D enterprise. R & D organizations should review their staffing patterns in these areas and build them up if they are not adequate.

E. "THE EDUCATIONAL CATALYST" ROLE

As a final note about staffing for field relationships we should mention the "educational catalyst" role that has been developed by a number of labs and centers. Although the terms may vary considerably from place to place, the essential idea is that a person in the field setting will be hired to test and implement R & D programs, remaining in his situation and acting as a liaison with the R & D organization. CEMREL, for example, has "change agents" in Chattanooga, Nashville, Bowling Green, and in the Pennsylvania Department of Instruction. Pittsburgh has hired personnel in the Frick and Oakleaf schools to stay on the job while serving as a funnel for new ideas from the Center. The National Laboratory for Higher Education has developed this concept extensively in its "Educational Development Officer" concept--a full-time position on the staffs of colleges or universities which is devoted to systematic organizational change using innovations from R & D research.* CUE in New York uses a number of fulltime community people in its Community Learning Centers. Many other labs and centers have full-time, on-site personnel to test, implement, and provide feedback for R & D efforts.

*For a description of the NLHE concept see: James Shultz and Philip Winstead, "The Educational Development Officer: A Catalyst for Change in Higher Education," The National Laboratory for Higher Education, Mutual Plaza, Durham, N. C. 27701, June 1, 1971.

Recommendation 30: Labs and Centers should explore the possibility for on-site field personnel to play the role of "educational catalysts" in order to test, implement, and give feedback on innovations.

F. CONSORTIUM ARRANGEMENTS

Thus far we have been discussing field relationships between a single R & D organization and its field clients. However, there are several examples of multi-organization consortia which have worked quite well. Three examples seem quite promising, two of which are presently operating and one of which is just under development.

Wisconsin has an elaborate, integrated consortium for the implementation of the Multi-Unit School concept. More than 300 schools are involved; six schools of education are running training programs; the PACT consortium (Participation to Activate Change Today) involves all the multi-unit schools in Wisconsin; liaison committees have been formed for a number of large school districts; "installation teams" tour around to members of the consortium which are having problems; state coordinators have been trained by the Center. Naturally this kind of multi-organization system requires heavy commitment from the Center for staffing, financing, and coordination, but the payoff is high. In this case the R & D center itself is a nerve center that connects other efforts.

The Appalachia Lab is experimenting with local district "cooperatives" as a linkpin to the field users. The cooperatives were formed when it became apparent that the Appalachian mountain districts were too small and too limited in resources to pick up sound educational innovations. Instead, larger cooperative arrangements were established in which superintendents, teachers, and other administrators work together on a regional basis. The districts themselves furnish the personnel and funds while the lab maintains a low profile, avoiding a directive role.

If Wisconsin forms an extreme point in the amount of direction from the Center, the Dallas confederation now under development forms the other extreme as a member of team over which it has little direct control. The Austin lab has joined as a co-partner with the Dallas Public Schools, the H. Ross Perrow Foundation, and the State Department of Instruction in an experimental program in the Dallas schools. The Perot Foundation has contributed about one million dollars, the Office of Education has put up about two million, and the Dallas school system another million. Jointly, the cooperating agencies have agreed to implement a number of high-impact innovations, including significant input from the R & D network. This type of site development, using a variety of educational innovations, is in contrast with the present product approach which stresses a single product that could be used in a number of settings. The hope is that high impact can be achieved by using a variety of attacks in a single location, rather than spreading a single innovation throughout many field settings. In this situation, the Lab loses the dominant position which is characteristic of,say, the Wisconsin approach, but in the process it gains much by a dynamic relationship with other organizations. This site development approach has received much emphasis from Associate Commissioner of Education Don Davies, and has been focused in the development of the Center for Renewal within the Office of Education. R & D organizations may find themselves increasingly involved in such efforts. If so, the approach may force serious reevaluation of the way R & D organizations relate to field settings.

Recommendation 31: Labs and centers should systematically share information about consortium arrangements and should constantly explore relationships which would directly advance their own special goals. CEDAR might be a good clearing house for this type of information; OE itself should also take a major facilitating role.

G. SUMMARY ON FIELD RELATIONSHIPS

Let us sum up our concerns about relations between field users and the R & D organizations with the following observations. First, we believe in a non-linear mode of research with heavy impact from field users on problem definition, research and development, and implementation strategies. Second, this leads us to insist on more diffusion and implementation as a legitimate effort of the R & D network. Both these statements call for heavy involvement with field users on the part of R & D organizations. They do not imply that R & D organizations should become "service stations," or that the field tail should wag the R & D dog. Field involvement must directly be tied to the R & D programs of a center or lab, and must contribute directly to the unique goals of the program without dissipating scarce resources.

A number of R & D organizations with comparatively low field involvement should carefully reexamine relationships with the field. These issues demand intensive attention to methods of effective organization, including strategies of linking to the programs of field users, making budgetary adjustments and finding new sources of funds, contractual agreements, feedback to the host field users, and reallocation of resources for effective performance. These issues have been discussed briefly, but of course any actual efforts along these lines will require much study and work by each center or lab in relation to its unique needs.

Finally, effective channels of communication about linking practices must be built up among the members of the R & D community. We were appalled by the lack of knowledge that people displayed about center and lab operations other than their own. We had assumed that information about various organizational experiments was widespread, but this was simply not the case. Much valuable experience

is being lost as each lab and center tries to re-invent the wheel. Somebody - DRDR, or CEDAR, or a special task force, or an individual researcher -- should explore these relationships in depth and share the information widely. Perhaps the effort should be linked with a conference where directors, researchers and field people could share creative ideas about linking R & D organizations with field users. This is imperative.

VII. RELATIONS WITH PERSONNEL TRAINING INSTITUTIONS

Early in our research we listed the teachers' colleges, schools of education, and other educational personnel training institutions as field clients who would be intimately associated with the R & D network. We thought it might be useful to examine the ways innovative ideas from R & D organizations were channeled into personnel training. Since nearly every person connected with education goes through a formal training program in the universities or colleges we assumed this would uncover nerve centers for moving creative new ideas into the educational channels. As we interviewed at different places we always raised this issue with R & D people.

The conclusion we reached is simple and dismal: there is almost no effective relationship between the R & D network and the personnel training network. There are a number of isolated examples of small-scale interaction, such as Wisconsin's use of six schools of education to train personnel for the Multi-Unit Schools, Austin's connection with a number of teachers' colleges, and Stanford's skeletal involvement in a teacher education program. Probably if they were pressed most R & D centers could show some link to a teacher education program or a school of education, but at best the links seem weak, ineffective, limited in objectives, and unenthusiastic. Nothing in this entire project surprised us more, and certainly nothing disappointed us more. When the study was begun we believed that the personnel training institutions should be a key place for interjecting innovation practices from the R & D network. We still persist in that naive belief in spite of rather strong contrary sentiments expressed by many people.

Interestingly enough, this question raised more arguments, more outright hostile reactions, and more intense negativism than any other question we asked.

In fact, at times there was nothing short of indignant outrage that we should even suggest it. The jist of the outrage was that the educational personnel institutions were so traditional, so stuffy, and so hopeless that it was useless to try to influence them. (This is an accurate reflection of conversations, not just journalistic overkill.) Most of the time the reaction from interviewees was hopeless exasperation rather than hostility to the idea:

> We'd love to channel a lot of our new ideas into the teachers' colleges and the school administrator programs. Actually, that seems like an effective short cut; everybody goes through that door at sometime, so why not hit them hard? However, the problem is too tough. The colleges are stuck in the mud; they can't move. The professors wouldn't know an effective innovation if it was colored pink and wore a six foot sign--and their career rewards ensure that they are blind to pink and six-foot signs! They are simply rocking along with yesterday's training programs captured by petty ivory tower ego trips, and about as open to new ideas as the proverbial old dog who wouldn't learn new tricks. (A researcher at RBS.)

While most of the people were interviewed were neither as hostile nor as facile with metaphors as the man above, the overall impression was that most people in the R & D network had simply written off the teacher training institutions as hopeless and impossible to affect with the limited resources of the R & D institutions.

We tried to find other reasons for the lack of connection between the R & D network and the personnel training institutions. Here are some guesses:

- Relations between the R & D network and the training institutions were never part of the original philosophy that undergirded the R & D program. Instead the planners wanted <u>direct</u> input to the nation's schools and colleges; the indirect (but perhaps effective) method of pre-service training to effect innovation was simply not seen as part of the package.

- The bureaucratic arrangements in the Office of Education have the Bureau of Educational Personnel Development and other teacher training programs in separate administrative systems from the R & D

enterprise, and the channels of effective communication between the various units seem limited. This may have been largely responsible for the lack of emphasis in the early stages of planning, and continues to influence the system today.

-The rather sharp divergence of research styles between the R & D organizations' concern for "policy" research and the teachers' college concern for "conclusion" research in the traditional academic mode hinders cooperation. This is especially true since the professors in the training institutions are rewarded for conclusion-oriented research, but may even be penalized if they devote too much time to policy activities.

-In most training institutions and teachers' colleges the pressure of handling huge groups of students in very traditional programs allows very little time for experimentation with innovations from the R & D network.

The bureaucratic separation of operations in Washington, the negative attitudes of researchers toward the training institutions, the differences in research styles, and the daily pressure of training programs are only a few of the forces involved. All of these factors, plus others, jointly work against cooperation between the R & D organizations and the teacher education institutions.

In summary, an avenue that seems to have serious potential for channeling innovations into the educational system is consistently ignored. Every teacher, every administrator, and every researcher in the field of education is trained in some college or university. By using these training institutions the R & D enterprise could have immediate impact on the behavior of teachers, the training of administrators, and the development of reform strategies. To us, the argument that these institutions are beyond hope is nonsense--rather condescending nonsense at that. Other arguments, such as a fear of dissipation of resources, or a divergence of life-styles that would hinder cooperation, seem to carry more weight. However, none of the objections seem so impressive that they should stop us from trying. The teacher training institutions are presumably not

more immovable than the public schools which also have alien life styles and which also quickly dissipate resources, but R & D organizations do not hesitate at the thought of trying to influence them.

In short, we believe that some types of innovations from the R & D centers and labs would be natural inputs to schools of education. The following would seem likely candidates: new teacher training programs, new methods of institutional evaluation, proposals for reworking administrative structures, and new curriculum packages. It would make sense to channel some of these innovations into the schools of education so that (1) large groups of future educational personnel could be reached at once, (2) the schools of education could reform their own programs in conjunction with the R & D effort (not a minor goal if we are trying to help all of education), (3) the meager R & D resources for dissemination and implementation could be coupled with the comparably much greater resources of the ongoing training programs, and (4) the feedback from the training programs could be used to revise the programs of the R & D centers.

Recommendation 32: The Office of Education should explore ways of making cooperation between the DRD, the Bureau of Educational Personnel Development, and other agencies much more effective. Joint programs, joint Requests for Proposals, and joint planning efforts would be a few suggestions.

Recommendation 33: The DRDR should earmark a block of funds specifically for cooperation between centers, labs, and training institutions. This money should be used on an "incentive" basis, going only to those organizations that demonstrate that they are creating vigorous new relationships that had not previously existed.

Recommendation 34: Every R & D center or lab should re-evaluate its ability to influence innovation through teacher training institutions, and should deliberately plan for new programs in this area.

VIII. SUMMARY OF RECOMMENDATIONS

For the reader's convenience we are listing all recommendations in this section, under the different sub-topics.

A. PROGRAM FOCUSES AND EVALUATION SYSTEMS

Recommendation 1: The stress on problem-focused, practical research which is systematically linked in programmatic fashion must continue to be a major concern of all levels of R & D management. Evaluation procedures at the federal level should continually focus on this problem, and individual labs and centers should continually re-evaluate their own operations to insure that they are as integrated as possible.

Recommendation 2: Evaluation procedures should be carefully structured so that they are appropriate to the program under consideration. Hence, they must, first of all, recognize the goals of the program. If these goals are thought inappropriate, an assertion to that effect differs from an evaluation of the outcome. Where outcome is evaluated against goals, the <u>criteria</u> of evaluation should be specified, so that whatever value judgments that enter can be detected.

Recommendation 3: Evaluators should always have expertise and experience in the area they are evaluating. Moreover, they should have sufficient time and preparation that they understand the programs they are to evaluate.

Recommendation 4: Information about existing in-house evaluation systems should be widely distributed among R & D organizations, through OE itself or through the CEDAR organization, in order that others may learn from them.

Recommendation 5: Labs and centers which do not presently have in-house evaluation units should seek information from other centers and labs and should carefully consider the advisability of beginning one.

B. THE LABS AND CENTERS AND THE QUESTION OF DISSEMINATION AND IMPLEMENTATION

Recommendation 6: Clear mission statements should be developed showing OE's and NIE's commitment to dissemination and implementation <u>within</u> the center and lab network.

Recommendation 7: The plans for NIE should clearly include dissemination and implementation aspects. The "hand-it-on" philosophy must be severely questioned, and plans for setting up NIE as research and NCEC as the implementation arm must be revised.

Comment: That does not mean NCEC is a bad idea, it just means that all the eggs should not be put in that carton. Freezing NIE out of implementation will probably severely limit the capacity of NIE to effect educational reform, and would be a clear victory for the "hand-it-on" approach.

Recommendation 8: Center and lab budgets must include large-scale funds for dissemination and implementation.

Recommendation 9: Center and lab staffs must be reorganized to reflect this emphasis. (More on that issue later)

Recommendation 10: Evaluation processes should increasingly include concrete emphasis on implementation and dissemination, instead of the vague, disconcerting statements that now give ambiguous direction.

C. STAFFING PATTERNS

Recommendation 11: DRDR or some other federal agency should mount a long-range program within the R & D network to study the reward structures, project management, and other problems associated with applied policy research with a view to making the R & D effort more attractive to high-level social scientists and other scholars.

Recommendation 12: The National Academy of Education should establish a yearly award for the best piece of applied policy research in education done by social science team effort. (A team, rather than an individual should be honored to encourage the kind of effective cooperation so critical to good applied research). If possible a cash prize should be offered, and there should be a conspicuous presentation of the award at a major national educational meeting, such as AERA.

Recommendation 13: A study should be immediately initiated to delineate the range of topics addressed by the R & D network. The study should be done by an interdisciplinary task force composed of people who are not within the traditional educational mold--social scientists, administrators; teachers, government officials who have little connection to the present R & D world view, people who could bring new ideas to the R & D task-definition.

Recommendation 14: Steps should be taken by the R & D organizations and by funding agencies to broaden the social science base of their staffs. Economists, sociologists, political scientists, anthropologists, historians, and social analysts from other backgrounds should be added to the staff rosters in significant numbers.

Recommendation 15: In R & D centers located on university campuses deliberate procedures should be implemented to equalize the status, rewards, and prestige for faculty and non-faculty professional personnel recognizing that they perform <u>different</u> functions which are not to be considered superior and inferior.

Recommendation 16: In addition to employing fresh PhD's and various subordinates without academic credentials Centers should employ professionals with established reputations at maximum salaries for crucial developmental roles.

Recommendation 17: University personnel structures now provide numerous prestigous jobs which are not faculty jobs. Examples would be associate deans for administrations, director of alumni relations, admissions officers. Means should be sought to include non-academic research and development officers in this group.

Recommendation 18: For faculty members, participation in R & D should require a major commitment of time and commitment to following through to development. Such commitments should be for terms, such as the duration of a stated program, rather than indefinite. This would probably entail increasing the average proportion of faculty time on the R & D budget, accompanied by serious efforts to reduce regular university obligations.

Recommendation 19: The <u>mix</u> between faculty and non-faculty must be considered carefully. To achieve high practical payoff the mix should probably be heavily balanced toward field-oriented personnel, many of whom have status on par with the faculty members.

Recommendation 20: Research is needed on solutions for certain key management problems common to the entire R & D network. One such problem is development of a reward structure for professional laboratory employees capable of attracting and retaining the best professionals in competition with top universities or government positions. The USOE should fund such research.

Recommendation 21: Efforts should be made through organizations in educational research and educational administration, and in schools of education, to advance the stature of the linking professions through professional recognition.

D. RELATIONS WITH FIELD USERS

Recommendation 22: Every center or lab should carefully review its relationships to its field users, and should take appropriate steps to build and sustain vital field ties.

Recommendation 23: Relations between R & D organizations and field users should have at least minimal degrees of formality, with clear statements of intent, responsibility, and regularized systems of feeding information back to the host schools. This does not necessarily imply elaborate contracts, but it does at least mean that some measure of clarity is achieved and written down for public inspection.

Recommendation 24: All federally funded educational research should explicitly require full reporting back to schools in which the research is done, in a form that is useful to the schools involved. Sufficient funding should routinely be included in research grants or contracts to pay for this, and it should be considered unethical for this not to be done with care.

Recommendation 25: The CEDAR staff should gather information about the alternative financial arrangements between all its member organizations and their field users and distribute that information widely so that alternative patterns can be explored by each laboratory and center.

Recommendation 26: The federal officials in DRDR should review budgetary arrangements for field dissemination and testing efforts so that budgets may reflect increased emphasis on such activities.

Recommendation 27: Individual labs and centers should review their own budgetary procedures concerning field and client relationships and should more systematically build in such funding relationships.

Recommendation 28: Centers and labs which do not presently employ full-time field relations experts should consider planning for such positions. Naturally, such planning must be done in close partnership with ongoing programs and their needs.

Recommendation 29: Field relations staff must be composed of intellectually tough, high-prestige people who can argue and fight for field input into the R & D enterprise. R & D organizations should review their staffing patterns in these areas and build them up if they are not adequate.

Recommendation 30: Labs and Centers should explore the possibility for on-site field personnel to play the role of "educational catalysts" in order to test, implement, and give feedback on innovations.

Recommendation 31: Labs and centers should systematically share information about consortium arrangements and should constantly explore relationships which would directly advance their own special goals. CEDAR might be a good clearing house for this type of information; OE itself should also take a major facilitating role.

E. RELATIONS WITH PERSONNEL TRAINING INSTITUTIONS

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Recommentation 33: The DRDR should earmark a block of funds specifically for cooperation between centers, labs, and training institutions. This money should be used on an "incentive" basis, going only to those organizations that demonstrate they they are creating vigorous new relationships that had not previously existed.

Recommendation 34: Every R & D center or lab should re-evaluate its ability to influence innovation through teacher training institutions, and should deliberately plan for new programs in this area.

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Southwest Educational Development Laboratory - Austin, Texas

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